

1760

T H E
Complete English Farmer :

O R,
Husbandry made perfectly easy,
I N -
ALL ITS USEFUL BRANCHES.

Containing what every Farmer ought to know and
Practice.

Among the various Articles treated of in this Work,
are the following, viz.

The Management and Qualities of the different Kinds of Grass, and making Hay.
Description of the different Soils and of manuring and ploughing Land.

The cultivation and management of Wheat and Barley.

The culture of Oats and Rye.
Of the Farmers Stock, &c.

The best Methods of breeding and rearing colts, managing horses and mares, and curing their numerous diseases.

The Art of rearing Calves & Lambs, together with the best Methods of managing Bulls, Oxen, Cows & sheep, to make them turn out to the greatest Advantage.

Also several excellent receipts to cure the different Disorders they are subject to.

The best and most approved Method of rearing Pigs, fattening Swine, and choosing the best Sort for breeding, and for curing all their Disorders.

Of Breeding Rabbits to the best Advantage.

The whole Art of rearing & managing Fowls, Ducks, Geese, Turkeys and Pigeons, to make them turn out profitable to the Farmer, with choice receipts to cure their several Distempers.

The Management of Bees, both for profit and pleasure.

The cultivation of Turnips, Beans, Peas, Tares, Flax, and Hemp, &c. &c. &c.

And other useful Articles, too numerous to mention in a Title-Page.

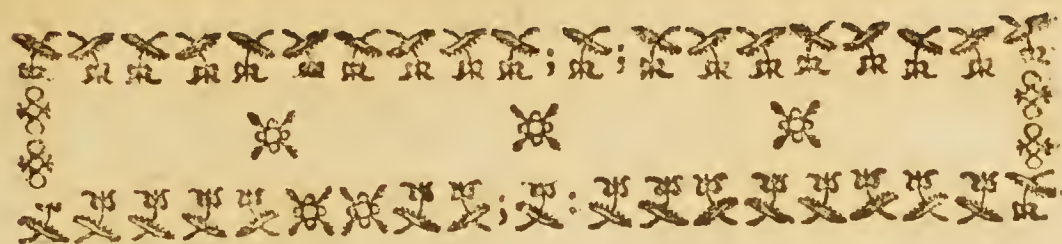
By GEORGE COOKE,
FARMER, at *West-End*, in *Hertfordshire*.

L O N D O N Printed :

B O S T O N : Re-printed by DANIEL KNEE-
LAND, for HENRY KNOX, in Corn-hill.

176-

RPJCH



INTRODUCTION.

 OTWITHSTANDING the great number of books which have been written on this subject, yet the multiplicity of improvements that are continually made, give ample room for a new publication. For though some of these improvements have been communicated to the public, yet they are of little use to husbandmen in general; the manner of the style in which they are wrote being either too incomprehensive for a common understanding, or the extensiveness of the work too considerable for a moderate purchase.

The business of the field is so considerable, that new improvements in cultivation, if properly represented, cannot fail of producing more copious advantages to the industrious husbandman.

We have therefore, in this little treatise, avoided all superfluous and confused repetitions, and have taken particular care to render the language smooth, clear, concise, and intelligible to every capacity. We have laid down the whole art of husbandry under such easy and distinct heads, that the farmer will have little more to do than proceed from the book to the field. In which field we doubt not but the utility of this little performance will be evidently represented.

C H. A P.



C H A P. I.

*Containing the management and
qualities of the different kinds of
Grass.*

TH E best season for sowing grass-feed, is the latter end of August, and the beginning of September. If the weather should be moist, or there is a prospect of rain, it will be the better, because the earth being at that season warm, the moisture will cause the seed to take root in a few days. But if this cannot be done in Autumn, the seeds may be sown about the middle of March, if the weather is not very severe. The land on which you intend to sow your grass-feed should be well ploughed and cleaned from the roots of all noxious weeds, such as fern, rushes, heath, gorse, broom, &c. The best method to destroy them effectually will be by ploughing up the surface in April, and let it lie some time to dry; then lay it in small heaps, and burn it. The ashes so produced, when spread on the land, will be a good manure for it.

Before the seed is put in the ground, the surface of it should be made quite level, otherwise the seed will be unequally buried. The quantity of grass-feed for an acre of land is usually three bushels; and when the seed is sown, it must be gently harrowed in, and the ground rolled with a wooden roller, which will make the surface even, and prevent the seeds being blown in patches.

When

When the grafs comes up, if there should be any bare spots where the feed has not grown, they may be sown again, and the ground rolled, which will fix the seeds ; and the first gentle showers will bring up the grafs, and make it very thick. Where the land is very low, and of the stiff clayey nature, which holds water in winter, it will be of great service to make some under-ground drains to carry off the water, which, if detained too long on the ground, will render the grafs sour.

Of Clover Grafs.

Of this plant there are a great variety of species ; but only three of them are cultivated in the open fields for the use of Cattle, viz. the Red Dutch clover, the White Dutch Clover, and the Hop Clover. The first of these should be sown in August, when there is a prospect of rain soon after ; and if it be well rolled some time in October, when the Ground is not too wet, it will press the Earth close to the roots, and cause the plants to send out more shoots. In the choice of the seed, that which is of a bright yellow colour, inclining to brown, should be preferred ; and the allowance for an acre of ground is ten pounds. It delights most in a rich warm soil, and such lands as are most dunged, marled, or limed. About the middle of May it will be fit to cut, and the proper time is when it begins to flower ; for if it stands much longer, the lower parts of the stems, and the under leaves will begin to dry, whereby it will produce a less quantity of hay, and that not so well flavoured. The greatest care must be taken in making it into hay ; for it will require much more labour and time to dry than common grafs, and it will shrink into less compass ; but if it be not too rank, it will make extraordinary rich food for Cattle. One acre of this will feed as many cattle as four or five of common grafs ; but great care must be taken when they are first put into it, lest it fill them with wind and kill them : to prevent which, the best way is only to turn

turn them into it the first Day about Noon, when the dew is off, for about half an hour ; the second day for an hour, and the third day for two ; and so on gradually till you let them stay all night. The best method when cattle are fed with this hay, is, to put it in racks, otherwise they will tread a great deal of it down with their feet.

The White Dutch clover grows naturally in most pastures, and is generally known by the name of the White Honey-suckle. This plant sends out roots from every joint, so that it thickens and makes the closest sward of any of the sown grasses. It is the sweetest feed for all sorts of cattle yet known ; therefore, when land is designed to be laid down for pasture, with intent to continue so, it should be sown with the seeds of this plant. The usual allowance of this seed is eight pounds to one acre of land ; the time of sowing is Autumn, and if the seeds grow kindly, it will afford a good crop of hay the spring following.

The Hop-clover grows naturally among the grass in the upland pastures. It has upright branching stalks about a foot high, garnished with trifoliate leaves. The flowers which are yellow, grow from the wings of the stalk, upon long foot stalks, collected into oval heads, having naked impalements laying over each other like scales, somewhat like the flowers of hops, from whence the plant had the name of Hop-clover. There are two sorts of this clover ; the other is a much smaller plant, and generally known by the name of None-such, or Yellow Hop-trefoil. This is both finer and sweeter than the great clover-grass.

Of Rey-Grass.

This is a more hardy sort of grass, and will grow on any land ; but it thrives best on sour, clayey, and weeping grounds : It neither receives damage from the searhing heats of the summer, nor the piercing frosts of the winter. It is the best of all winter
 feed

food for cattle, the shorter it is eaten the better, and it springs earlier than any other. There is no danger of overstocking it, for if it be left to grow too much, the stalk will become hard and sticky. It is best for horses and sheep, and very much prevents the rot in the latter. The best way of sowing it is with clover; and the common quantity of seed is two bushels to an acre; though in some lands where the clover is likely to succeed very well, they sow eight pounds of clover-feed, and one bushel of rey-feed to an acre, and this makes a crop that will last seven or eight years. Some mow it as hay, and thrash it for the seed, which about London, will sell from 2s. 6d. per bushel to 3s. An acre of grafs will sometimes produce four or five quarts of seed. If at any Time a field of this grafs is found to grow thin, it is only necessary to strew on a bushel of the seed, and roll it with a wooden roller, and the plants rising from this addition will make the whole crop sufficiently thick. Rey-grafs has this peculiar advantage, that it kills weeds without any other sown plant; even thistles cannot grow among it. When the rey-grafs is cut for hay before perfectly ripe, the hay is the better; but the seed will not grow so well. When the seed is newly thrashed, it must not be laid too thick, for it is very apt to heat and ferment, and will therefore be unavoidably spoiled.

Of Lucerne.

This plant may be sown from the beginning of March to the end of May, but the best time, if the weather be dry, is in April. The usual allowance for sowing is about twelve or fourteen pounds to an acre. To make hay it should be mowed as soon as the bloom appears, or rather sooner: it must not be spread like common grafs, but lie in the swarth like clover, and turned in the same manner, or the leaves which are most nutritive will drop off. The hay is good for all sorts of cattle; and when horses are fed with it they should

should not have their full allowance of corn; the lucern, in a great measure, answereth the purpose of both corn and hay. It is also the most profitable of any sort of fodder to feed horses with in the summer, by mowing and giving it to them green. If the land is good, the produce is incredible; and according to the goodness and depth of the soil, so will the crops be. One acre, if it takes well, is supposed to keep three horses all the year. It purges in spring, and will make any cattle fat in a few days.

Of Saint Poin.

The best time for sowing this plant is in autumn, from the beginning of August to the end of September; if any other grain is mixed with it, then sow it in spring, from the beginning of February till the end of March; the earlier it is sown in either season the better, and it will thrive by far the best if sown by itself. It is esteemed one of the best kinds of grass, because of its long continuance and bulk: in many lands it will last twenty or thirty years. If you reserve it for mowing, it must be laid up by the latter end of March; and the time of cutting it is when it begins to flower, which is generally about the middle of May. It is an excellent hay for horses, and the best food for great cattle, especially in the spring. It produces abundance of milk, and the butter that is made of it is exceeding good. It must be sown in far greater quantities than the clover seed, because it is much larger and lighter. You need not be afraid of sowing it too thick, because it the sooner stocks the ground, and destroys all the other grass and weeds. It must not be fed the first year, especially with great cattle, as the sweetness of it will provoke the cattle to bite too near the ground, and large cattle treading on it is a great detriment, especially in wet weather; therefore it is best mowing in the first and second year, as after that it will be out of danger. The marling of Saint Poin, when

when it is almost worn out, makes a great improvement for three or four years, and after that the grafs which the marle produces will be near as good as the Saint Foin. If you sow it with soot once in four or five years, it will increase prodigiously, and cause it to last a much longer time. It will thrive on the poorest and most barren land we have, except in sheer and slight sands; and instead of impoverishing, it will considerably advance the land whereon it grows, which may be broke up and sown with corn, till it be out of heart, after which it may be sowed with Saint Foin again.

Espercat, is a kind of Saint Foin, and by some people supposed to be the same.

Spurry-feed is usually sown in the low-countries twice in a summer, the first time in May, that it may flower in June and July; and in August the feed is usually ripe. The second time of sowing it is after rye-harvest, which grounds are usually ploughed up and sown with this feed, to supply the cattle in winter when other grafs is wanting.

Of making Hay.

The farmer may easily judge the proper time for mowing grafs by the quality of it. When the crop is very great, it should be cut as soon as the bottom of the grafs grows yellow; for if it stands longer, more will be lost by the quantity of leaves rotted at the bottom, and the ill flavour which these will give to the rest, than will be gained by its growth. When other circumstances permit the choice of time, it should be when the grafs is in full bloom, before the stalks begin to harden, and rather early than late, because the more sap remains in the roots, the sooner the next crop will spring up. A dew or dusky morning should be chosen for cutting the grafs, because, being then fullest of sap, it stands best to the scythe. When the high noon-tide sun has dried the grafs, and made it recline its head, the mower will employ

employ his time more usefully in making the hay already cut, than in continuing to mow, with great additional labour, grass which no longer makes the due resistance. Let the hay-makers follow the mowers, and, if the weather be quite fine, spread out the grass as fast as it is cut down, especially if it lie so thick in the swarth, that neither the air nor sun can pass freely through it; but if it is likely to rain, let it remain in the swarth. In the evening make it into grass cocks, and the next day, as soon as the dew is off the ground, spread it again, and turn it, that it may wither on the other side; then handle it, and if you find it dry, make it up into large cocks. If the weather continues favourable during the second day, the grass will, by that time, be so dry as to bear being kept in these cocks till the day on which it is to be carted, when it should be spread out again in the morning to receive a farther drying.

The cocks should be made as tall and taper as possible, because the winds, by passing through them, will dry the hay moderately and equally; and though wet should fall upon them, it will not do much hurt, because the greatest part of it will run off directly, and the sun and wind will soon dry that which may have penetrated into the cocks. These cocks have therefore a great advantage over the common, small, and low ones; for if a rainy season comes on, these last will be so thoroughly wetted, that the wind will not be able to pierce sufficiently to dry them.

It is a very great prejudice to land to mow it too often, except it be land that is constantly mended with water floods; and therefore where you have not that conveniency once in three years, or every other year, feed your mowing lands if you cannot get manure constantly to keep them in heart; for feeding is as necessary for hay ground, as fallowing is for corn ground.



C H A P. I I.

*Of the management and cultivation
of WHEAT and BARLEY.*

WH E A T requires more tillage than any other crop whatever ; and with this there must be allowed a proper quantity of manure : the ground can never be too fine, but it may easily be too rich with dung. When the land has a great deal of ploughing, moderate enrichment, and the corn is sown early, the produce is a large crop with short straw and a full ear, but on the contrary, a great deal of dung and late sowing seed, the stalk, but the ear does not come to so great perfection.

Notwithstanding dung is the most common manure for wheat land, yet in most cases it is the worst of all ; the virtue of it being irregularly conveyed to the ground, and it being always productive of weeds. Marle, where it can be had, is the best ; the most excellent and the most lasting ; as are likewise lime and chalk.

In order to prepare and break the land for wheat five ploughings should be allowed, and these should always be done in dry weather : the depth of the soil will direct how deep to plough ; for all the good mould should be turned up, but none of the bottom. The method of ploughing in fitches succeeds better for wheat than any other ; five fitches may come into a perch for sowing, with a thorough a foot wide between every two. This method makes the soil very fine, and gives an opportunity

nity of sowing the seed more regular : It is of the nature of the drill husbandry, and is much better for wheat than any other. Particular care must be taken to drop the seed even, after which a small one horse plough should be drawn along each furrow : this throws up the corn that fell there, and the finest of the mould with it upon the flitches. There are many other methods of sowing wheat, but this will succeed the best of any. If the ground has been well prepared by the former ploughings, and has received the due benefits of the air, it will now be rich and fit for service.

The nature of the land should be a principal consideration in the choice of the wheat : the most profitable wheats require the strongest soils ; and where the land is of another kind, different seed must be used. If the land be firm, strong, and naturally clayey, but well dressed by manure and tillage, it will bear the *Red Lammas Wheat*, which is the finest of all. It is called *Red*, because of the colour of the stalk and ear, which have a reddish cast : and even the skin of the grain has the same, though the flower be so perfectly white. Every part of this wheat is valuable ; the stalk grows five feet high, and affords the most valuable straw.

A piece of ground which is loomy, but rich, or one that has a blue clay at the bottom, but a good black mould at top, is the fittest for sowing that sort which the farmers call *Pirky Wheat*. This is little inferior to the *Red Lammas*, and sometimes even excels it in the crop. It has a white straw and white ear ; but the skin of the kernell is red. This corn, having a very thin skin, yields a great deal of floor and little bran.

The next sort is called the *Yellow Lammas* : it thrives best in a gravelly or chalky soil, and will yield more than either of the former. It is known by the whiteness of the straw and redness of the ear. The skin of the grain is rather thick, but the flower is exceeding white, and there is a great deal of it in the grain.

The *White Wheat* should be sown on a soil of poor light loom, inclining to sand. It has a white straw, and

and a thick ear, which is rough when ripe, occasioned by the several husks which cover each grain. It is a hardy and strong wheat in the growth, and is less subject to accident by blight and mildew than any other. The skin is a pale yellow, the grains are large, sound and heavy, and produce a great deal of flour, and little bran.

In low lands where the soil will be more damp than what suits the generality of this grain, there is one that will answer : this is called the *Double-eared Wheat* ; it requires a stiff soil to keep it upright, and more moisture than the others. The straw of this is white, the ear yellowish, but of a dusky cast ? it affords a great deal of good flour, but not equal to the foregoing.

When the farmer has chosen his seed, the next consideration must be to prepare it for the ground by steeping ; which is done as follows : dissolve in water as much salt as will make an egg swim, then add so much more : stir this up, and then put into a common tub of it two pounds and a half of allum beat to powder ; stir it up and put in the wheat ; let it stand thirty-five hours, then draw off the liquor, and cover it over with slacked lime sifted, and it will be fit for sowing. To steep more corn, add fresh ingredients, and so go on till all is done.

When the corn is in the ground, and a small plough has been carried along all the furrows, they will be clean, and free for the discharge of water, and no farther attendance is required till the blade is come up ; when, if it be neither too poor nor rank, all that need be done is rolling the ground. This should be done with a light roller in damp soils, and with a heavier in dry.

If the crop be too rank, the right method is to mow it, because the feet of the mowers will sufficiently answer the purpose of the roller.

When the crop is poor, the best method is to put in sheep to eat down the blade. The dung and urine of these creatures, with the perspiration of their bodies,

B

is

is so strengthening to the crop, that it will spring up amazingly. If it should want further refreshment, give it a top-dressing of foot, pigeon's dung, hog's dung, or the like. The method of sowing them is by the hand, sprinkling them as corn is sown; and the best time is on a calm day, and when it appears likely to rain.

Great care should be taken to guard against the rooks just at the time when the wheat is shooting up. These mischievous birds perceive its sprouting much sooner than the farmer can, and are led by the shoot to pick it up. The farmer should be no less attentive in keeping his land free from weeds. This may be done with a small kind of hoe, which, if used among the wheat early in the spring, before the ground is covered by the blades of corn, will effectually eradicate all the weeds, especially if this work be done in dry weather; because, being small, they then soon wither and die. If the ground happens to be very full of weeds, it may be necessary to go over it a second time, about a fortnight after the first, to cut up those which may have been too small to be noticed. By this means the corn will be kept clean, and there will not be time for new weeds to grow so as afterwards to do it any great prejudice: for the ground will be so much shaded by the corn, that the weeds will thereby be kept down, in such manner as not to ripen their seeds before harvest.

The time of cutting the corn should be a little before it is ripe, because, as it should always be some time on the ground, it will continue ripening during that time. While the weeds fade, the ear fills: the new-cut stalk receives some nourishment, and the dews will get into the ear, and swell the grain. The hotter the season is, the more danger there is in letting the corn stand to be too ripe on the ground. When it is fit for carrying in, the greatest care must be taken to lay it secure from Vermin. The best method, and what keeps it the most secure and sweetest, is, to place it in large stacks out of doors. And the most effectual method of securing it is by raising the stack upon caped stones,

stones, for the capstone being considerably broad; nothing can creep up the other and get over it. By this method corn will be safe from weather and vermin many years. After it is stacked it must be thatched; or, if that cannot be done, it must be secured by a moveable cover.

The next consideration is the threshing of the wheat; the best time for which is warm dry weather, or a clear frost; because at these times the grain will come out of the hulk much easier. Nothing now remains but the cleaning of the corn, and no pains should be spared to do this effectually. The beginning of the cleaning should always be by a long cast, from one end of the barn to the other, and it should be finished by the fan.

Having gone through the whole progress of cultivating wheat, we shall now proceed to describe the cultivation.

Of BARLEY.

The most proper time for sowing Barley is rather difficult to determine. The various kinds (of which we shall speak hereafter) make a considerable difference; but in the common sort there is the whole spring for the choice. If the soil be dry the seed should be got into the ground early; but in a more moist soil it should be sown later. The latter end of January is the best for very dry and warm lands; the beginning of March, in general, is a better time for the other. April is not too late to sow Barley after turnips with a prospect of a good crop, and even in the beginning of May, if the turnips are not eaten off sooner, a good crop may be raised, choosing a right kind. In general the end of February or the beginning of March may be esteemed the best time.

Proper consideration must be had with respect to the choice of the Barley for seed. Though there are several kinds, yet there is one general rule which holds equally of all; it is that, whatever be the kind, it must be brought

brought from a remote place, and from a soil different from that on which it is intended to be sown. The common kind of Barley sown with us is the long-eared kind, which is known by the name of Common Barley.

In the Northern counties they sow a kind, called from the shape of the ear Square Barley, and by some Bore and Big. This is a hardy kind, and succeeds in stiff lands, where the other fails. In some parts of England they also cultivate the Naked Barley, so called, because there are no awns at the ear ; and beside these we have a very valuable kind, the Patney Barley, or Rath Ripe Barley, which is of excellent service to those who cannot get their land ready in time for the common kind ; because it may be sown very late, and yet come to a good harvest, requiring but ten or eleven weeks for its growth. To these may be added another kind, called the Sprat Barley, and by some the Battle-door Barley, which in many Places will prove very advantageous. Whichever of these kinds the farmer finds his lands most fit to bear, he must choose the seed corn clean, sound, firm, and heavy.

The square Barley requires most time in the ground, and must be, therefore, sown earliest of all. The Patney Barley needs not be got into the ground till April, and will even bear to be sown as late as May. The best season for sowing common Barley is the middle of March : the Battle-door kind may be a little earlier, and the Naked Barley should be about the same time with the Common.

The farmer may be led, by the particular circumstances of his land, to one or other of the three less common kinds ; but in general the fine long-eared Barley is the sort he should cultivate, because it answers excellently for all purposes ; but if his land should not be properly prepared for this, he may use the Patney kind.

The next consideration is the steeping of the seed-corn, which must be done thus : Dissolve in soft river water as much salt as will make an egg swim, and then add one third the weight more.

To

To a tub of this throw in a peck of stone lime, and stir it about till the lime is well flaked. Then put the feed-corn into a large vessel of water; stir it about, and skim off all the light grains; put the good corn into the liquor, and let it stand twenty-four hours; then put in allum at the rate of about one ounce to every gallon of the liquor. This must be first dissolved in water, and stand to be cold, and it must then be put to the rest: after this the whole must stand twelve hours more, and then the liquor being drawn off by the tap, the corn must be spread upon the floor, and some flaked lime in powder sifted over it, till the grains are well covered. This done, it will be ready for sowing; and if the ground be likewise ready, the crop will be the greater. The time of steeping must be varied, according to the early or late season. The Patney Barley, which is not sown till the end of April, should be steeped four hours more than the Common: and if it be not sown till May, it must lie in the steeping tub two or three hours longer.

The best soil for Barley is a good rich loam, not too sandy: it will also grow very well upon gravelly land, where there is a good bottom of mould, and upon chalky soil, with proper dressing. Sandy ground hastens up the Rath Ripe Barley, but it requires a great deal of manure. The method of sowing Barley depends in a great measure on the nature of the land. When it is of a light kind nothing is better than the sowing by broad-cast all over the ground, and plowing it in; but this will not do in hard soils. When the land is a little firmer in its nature, but still sandy, the best way is to sow the Barley after the plough, and then harrow it in.

We have already shewn the use of the Patney Barley: the Common kind is fit for moderate soils well tilled, and for a middle season of sowing: the others have their particular uses, which we shall here mention. When land is too heavy and too damp for these, the Square Barley is to be sown early, and with moderate steeping. If the farmer has a stiff damp soil, which is

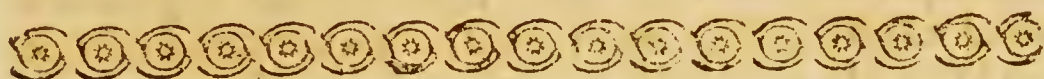
difficultly got into a condition of this kind of crop, let him get it into as good order as he can by the beginning of February, and then sow Spart Barley upon it. The moisture in such a soil will feed a large stalk and a good ear. Lastly, if the field designed for Barley be clayey and stiff, yet by its situation is dry, the kind of Barley should be the Naked, and this should be sown not later than the first week in March.

After the seed is sown, it is essentially necessary to roll the ground. The loose soil requires this most, and it always lays the mould close to the roots, and at the same time prepares the ground for harvest. And when the Barley has been up three weeks or a month, it will be proper to roll it over with a weighty roller, which will again press the earth close to the roots of the corn, and thereby prevent the sun and air from penetrating the ground, which will be of singular service in dry seasons; and this rolling of it before it stalks, will cause it to tiller out into a greater number of stalks; so that if the plants should be thin, this will cause them to spread in such manner as to fill the ground, and likewise strengthen the stalks. Particular care must be taken to keep it clear of weeds.

If the corn grows too rank, as it is sometimes apt to do in a wet spring, mowing is then much better than feeding it; because the scythe takes off only the rank tops, but the sheep feed upon all indifferently: nor should they even in any case be left upon it too long, because, being particularly fond of the sweet end of the stalk next the root, they will bite so close as to injure the future growth of the plant.

Barley is ripe when the red roan is gone off, when the ears droop and fall, as it were, double against the straw, and the stalks have lost their verdure. If it happen to be full of weeds, it must lie in the swarth till they are dry. It is not apt to shed; but in wet weather it will be inclined to spout or grow musty; and therefore every fair day after rain it should be shcock up and turned; and when it is tolerably dry, let it be made up
into

into cocks ; but be careful never to house it till thoroughly dry, lest it mow-burn, which will make it malt worse than if it had spired in the field. The common produce of Barley is two or three quarters upon an acre.



C H A P. III.

Of the culture of OATS and RYE.

O A T S will grow on almost any soil, but the richest will produce the greatest profit. They will succeed extremely well upon a wheat or barley stubble, and the ground must be thus prepared for them. In November throw it up in broad land to have the benefit of the snow and frosts ; and in January following give it a very good deep, and careful plowing. Where a very light ground is intended for Oats, one plowing will be enough : but when the loamy or heavier soils have two plowings for Oats, the crop is always the better, and the ground is left in a more advantageous condition.

There are five kind of Oats ; the principle of which are the White Oat, which is the best of all ; and the Black Oat. The other kinds are, the Grey and the Red Oat ; and the Naked Oat, so called, because there are no heads to the husks. The white Oat is apt to grow rank in the straw and blade ; the Black much less so : therefore, where ground is very rank, the Black Oat is to be preferred. In the choice of the seed, the largest, heaviest, and firmest is the best ; and of whatever nature the land is, which is to be sown with them, they should, if possible, be obtained from one of a quite contrary quality. The Oat will grow on any, dry or moist,

moist, tough or light earth ; but it will succeed best if brought from a light to a firm land, or from a moist to a dry. If the soil and management be right, the white Oats will yield better than the black considerably.

The seed should be slightly steeped, as it will be of great advantage to the crop ; but no other ingredient should be used than common salt. Twice as much salt should be allowed to the water as it is necessary to make an egg swim, and lime must be sifted over them while very wet.

The White Oat should be sown about the latter end of February ; the Black Oat a week or ten days sooner. The former is fittest for low ground, and the latter for such as is higher. The Black makes as sweet mud as the White. The same sort should never be repeatedly sown ; but the seed exchanged from year to year, otherwise the kind will be lost, for they always degenerate.

When the Oats are in the ground they will require no more care till the beginning of April, when it will be a great benefit to the crop to roll the field, especially if it be of a light, loose soil. This fixes the mould to their roots, and they grow after it with fresh vigour. It may be repeated after some time, but before the stalks rise to be so hard as to suffer by breaking. Great care must be taken to keep the ground clear of weeds.

The proper time for cutting the Oat is, a little before it be fully ripe ; for it will improve by lying on the ground. But if the White Oat be the kind, this caution of cutting them somewhat before full ripeness is yet more essential ; because it is necessary upon all accounts, that this crop lie a little upon the ground, after cutting, and the White is apt to shed in lying, if it has been ripe before it was cut. In this case, however, a proper limitation must be considered ; for if the crop be cut too green, the grain will not swell, but on the contrary it will shrink. The right time is about four or five days before the state of ripeness. When they are ripe, the straw turns yellow, the grain becomes hard, and the chaff begins to open and show the seed.

If the farmer should chuse to raise Oats by the new method of drill and horse-hoeing husbandry, he must plant them in double rows, with six feet intervals: the ground must be deeply plowed where the rows stand, and the bed on which the rows are raised, must be carried up as high as it will well stand above the level of the rest of the ground. The distance of the two rows from each other should be fifteen inches. As soon as the plants are above the ground, they should be perfectly well hoed between the rows, which will entirely prevent the growing of weeds. After ten days more, the horse-hoe should be brought into the broad intervals, and they should be thoroughly well broke: this will give a fresh growth to the young plants, but care must be taken not to come so near the beds as to injure them. After this the whole is to be left to nature, till the stalks are found, and have grown five or six inches above the ground, then there must be another horse-hoeing, and in the same manner. The crop must then be managed exactly as those raised in the common methods, and the Oats will be very fine.

The meal of Oats makes tolerable good bread, and is the common food of the country people in the North. In some places beer is made with the grain: but its principal use is for the food of horses, for which purpose it is reckoned very wholesome, being sweet, and of an opening nature; but it must not be given them before it has sweated in the mow, or barn, or been otherwise dried, lest it should prove too laxative, and hurt them.

Of R Y E.

There are two sorts of this grain, viz. the large rye, which is fittest for winter sowing; and the small rye for spring. The large, or winter rye is the strongest and hardiest, and is generally sown on poor, dry, gravelly, or sandy soils, where wheat will not thrive. When it is sown the ground must be dry; for if much
rain

rain falls, even after it is sown, before the rye is come up, it will rot in the earth. It will ripen much earlier on a light land than a cold stiff ground, and by continuing to sow it in such a soil for two or three years, it will be forwarded so much as to ripen a month earlier than that which has been raised upon strong cold ground. For this reason those who are obliged to sow rye toward spring, generally provide themselves with this early seed. A little sprinkling of dung or mud, though it be but half the quantity commonly used for other corn land, will, if laid upon the rye ground, greatly advance the crop.

If a harvest crop is expected, it is absolutely necessary to steep the rye, the ingredients for which are only common salt and allum. The salt to be put into the water till it makes an egg swim, and then half so much more to be added; and after twelve hours steeping, the allum to be put in, an ounce to every gallon. When the whole has stood twelve hours longer, the liquor must be drawn off, and the seed spread on a floor, and covered thick with flaked lime, sifted over it, after which it is immediately to be sown. The usual allowance is two bushels of seed to an acre, or, if it be new broke up ground, or land subject to worms, about a peck more, and the produce of each acre will generally amount to about twenty bushels.

The small Rye may be sown in the spring, about the same time as oats, and usually ripens as soon as the other sort; but if the season prove wet, it is apt to run much to straw, and the grain is generally lighter than the other. The principle use of this sort is to re-sow lands where the crop has failed that was sown in autumn.

When this corn is ripe its straw turns yellow, its ear hangs, and the grain is hard. It is not very apt to shed, and therefore, if it be weedy, it should be on the ground a week or ten days after it is wet (if the weeds do not dry sooner) before it be bound up; for otherwise these weeds will give in the barn, make the Rye
not

not thresh well, and render it musty. But as this grain will grow in the ear sooner than any other, if it be wet, particular care must be taken, especially if rain comes on, to turn it at least once in two or three days, and lay the ears upon the stubble, as high above the ground as possible. This will help to preserve it from hurtful moisture: but if it be cut in perfectly dry weather, and without weeds, it may be housed as it is reaped.

Rye is generally used for bread, either alone, or mixed with wheat, in which state it is called messing corn. It likewise yields a strong spirit when distilled; and, if sowed only for dressing of land, is of great service to the ground where it is ploughed in green and succulent. This plant is also sown in autumn to great advantage, purposely for green feed for cattle, particular for ewes and lambs in the spring, before there is plenty of grass. When this is intended, the Rye should be sown early, that it may have strength to furnish early fodder. In this light, it will supply the want of turnips where they have failed, or where their season is over; so that in such cases, it is very good husbandry to sow the land with Rye especially where there are flocks of sheep, which cannot be well supported without green food early in the spring. The farmer who has many sheep should consider, that turnips are always a very precarious crop; and therefore he should, beside sowing some places with cole seed, in order to have green fodder, sow Rye in others, to guard against accidents.



C H A P. IV.

Of the farmer's stock. Containing the method of breeding, rearing, and managing the Horse; with a number of the most approved receipts for curing the various diseases incident to that noble beast.

HA V I N G in the preceding chapters gone through the culture of the most material crops, we shall now proceed to another article, which no less requires the care and attention of the industrious husbandman. This is his stock of cattle, part of which are necessary for his service in the execution of his work, and part for breeding, for sale, and for their products. Under this head of stock are comprehended the horse and cow kinds, sheep and hogs, poultry, &c. concerning which we shall begin with the horse, as being one of the most noble and useful animals belonging to a farm.

Directions for chusing a H O R S E.

In chusing of a horse the farmer should be careful that the body be of a proper proportion, not too small or slender, nor too large; the back should be strait, or have only a moderate sinking below the withers; for when a horse has a low back, and is higher behind than before, it indicates weakness. His ribs should be large, his flanks smooth and full, and his hind parts, or uppermost haunches, not rising higher than his shoulders.

The

The next consideration must be his wind, which may easily be known by the motion of his flanks. A horse that is broken winded pinches in his flanks with a very slow motion, and drops them suddenly : but many horses breathe thick that are not broken winded, which will happen in any horse that is foggy and foul fed without sufficient exercise. But if a horse has been in good keeping, and had proper exercise, and yet these symptoms appear, it is a sign that there is some defect either accidental or natural, such as a narrow chest, or some cold that has caused his lungs to be contaminated.

The eye is another particular which should be well considered, though in this the best judges are often deceived. The clearness of the eye is a sure indication of its goodness ; but this is not all that should be attended to ; the eye-lids, eye-brows, & all the parts belonging to it must also be considered ; for many horses, whose eyes appear clear and brilliant, will go blind at seven or eight years old. Be careful therefore to observe, whether the parts between the eye-lids and eye-brows are free from bunches, and the part round the under eye-lid be not full or swelled ; for these are indications that the creature's eyes will not last. When the eye is remarkably flat and sunk within its orbit, it is a bad sign ; or when it looks dead and lifeless. The iris or circle, that surrounds the sight of the eye, should be distinct, and of a pale variegated cinnamon colour ; for this is always a sure sign of a good eye. When the horse is first led out of a dark stable into a strong light, be sure to observe whether he wrinkles his brow, and looks upwards to receive more light ; for these are indications of his eyes being bad. But if you observe that the dimensions of the pupil are large, and that they contract on his coming into a strong light, it is almost an infallible sign that the eye is good.

The shoulders should be next considered in chusing a horse ; they should not be too much loaded ; for a horse with heavy shoulders can never move well ; on the contrary, one that has very thin shoulders, with a nar-

row chest, tho' he may move briskly while he keeps found, yet such horses are generally weak, and the most easily lamed in the shoulders of all others. A medium therefore should be observed : for such only are horses for service. Be careful to observe the creature's motions, that the shoulders, knees, and pasterns all act together in concert, and have but one spring of motion ; for such alone can be said to move well.

The limbs should be free from splents and wind-galls ; the knees strait and not bending ; the back sinews strong and well braced ; the pastern-joints clean, and free from swelling ; and the hocks lean and dry, free from curbs, spavings, and flatulent humours.

The feet should be smooth and tough, of a middle size, without wrinkle, neither too hard and brittle, nor too tender. The heels should be firm, and no ways spongy or rotten, the frogs horny and dry, and the soles somewhat hollow, like the inside of a dish or bowl.

Exclusive of these observations already enumerated, there are several other particulars necessary in chusing a horse. If his head be large and fleshy, and his neck thick and gross, he will always go heavy on the land, and therefore should never be chosen. A horse that has his hocks distant and very wide, seldom moves well, but is apt to cut and chafe, by crossing one leg over the other. Fleshy legged horses are generally subject to the grease, and other infirmities of that kind, and therefore should not be chosen.

One very principal matter is the temper of the horse ; because if that be good, it greatly augments its value ; whereas the contrary exposes him to many accidents. It is indeed difficult to discover the temper of a horse without a proper trial, which always should be obtained if possible. Fear is an impediment in a horse's temper that greatly lessens his value. A fearful horse endangers both himself and his rider, and many such are utterly spoiled and ruined by the accidents they are exposed to from their timidity. A fearful horse may be almost known at first sight, by his crouching, creeping, and starting.

A

A horse that is very hot and fretful must likewise be avoided ; but care should be taken to distinguish between an hot, fretful horse, and one that is eager and craving ; the former begins to fret the moment he is out of the stable, and continues in that humour till he has quite fatigued himself ; but the latter endeavours only to be the first in the chase, or the foremost in the field, and is truly valuable : the former has those qualities which resemble intemperance and rashness ; the latter, prudence and courage.

Of the breeding and rearing of horses.

If the farmer has a large quantity of pasture, either in common, or in woods or groves, it is no small advantage to keep a team of mares for breed ; but where there is most arable, and little pasture-land, stone-horses or geldings are more necessary, as may be observed in several counties of that sort.

In Hertfordshire great advantage is made by buying colts out of Leicestershire, of between two and three years old, which at about six years old, are sold to gentlemen at London for their coaches. These colts improve much in their stature, and their work pays for their keeping ; which makes it a double advantage to them, and gives the former an opportunity of bringing them up to be fit for business.

If you design to have beautiful strong colts, let your stallion and mare be so, especially your mare ; for the form and shape of the foal is generally more like the mare than the horse, and more particularly for the head and neck, which is the beautiful part of the horse. Let both the stallion and mare be of lively brisk natures ; for heavy dull breeders will always produce lumpish heavy colts : and see that they be of healthy sound constitutions ; for your colts will, for the most part, have the same distempers with the stallions and mares : and if you desire to have large colts, be sure to have large bellied mares, that the colts may have room to grow in, and give them good keeping,

and then you need not fear their size, whatever may be the stature of the stallion.

Let your mares be as tame as possible : it is better to keep them to gentle, easy work, such as plowing an hour or two in a day, &c. than to have them wild ; for by being acquainted with their keeper and being soberly handled, you may with ease remove them from one pasture to another, bring them to be covered, and to take their colts from them ; whereas wild mares are not only troublesome, but often destroy the colts in their bellies, by their leaping of ditches and hedges, &c.

The most certain method of having your mares breed, and the most profitable for the farmer, except he keeps his stallion to let out to hire, is to have a place well fenced, that is good land to keep your horse in, and to let your mares go with your horse during the months of April and May ; but your horse this way will not serve so many mares as if housed, nor be so fit for constant working the other ten months of the year ; and therefore if you work him hard, or let him out to horse more mares than your own, you must take him into the stable, and feed him well ; and if the horse is kept in the stable, it is reckoned best to take the mare in too, for about a month or six weeks ; and that she be fed well with hay and oats ; and that about five or six days before you bring her to the horse, you bleed her on both sides of the neck, taking out of each vein about a quart of blood.

In the breeding countries, in the stable where they keep stallions on purpose to let out to horse mares, they have a square hole with a door to it, big enough for the horse to put his head and neck out at ; to which hole they bring the mare for the horse to smell on, by which means they can see whether the mare will stand to the horse or not, without any danger of the mares striking the horse, or his doing of himself any injury. If they find the mare willing to stand, they have her out in some broad place, where they lead the stallion out to her ; and if he be unlucky and mad, with
two

two men to lead him, and let him horse her : they reckon in the morning fasting, or in the evening, the best times of the day ; especially the morning, and that the horse be well provender'd and drink but little over night. When the stallion is dismounted, they commonly throw a pail of cold water on the mare, which they think makes her take horsing the better.

After the mare is covered, they that are very exact in taking care of them, keep them to the same diet as before, for three weeks or a month, and without work, and about September they take their mares into the house again, where they keep them till they foal ; at which time they feed them with mashes and other moist food till the grass comes to be plentiful : which are niceties the farmer seldom troubles himself about. If after they have foaled they keep a night or two in the stable, and give them the best hay, grass and oats that they have, they think it sufficient.

The best time for breeding is when the mares are from four to twelve years old, and much longer, if they have only been kept to breed on, and not worked ; and the horse from five to fourteen years old.

The mares should be well kept about a fortnight before foaling, as it will not only make them have plenty of milk, but cause them quickly to take horse again.

The most proper time for weaning of colts is in Candlemas or Shrovetide ; and in this particular the farmer should be very careful ; for if the colts be not weaned, well summered and wintered, especially for the first three years, they will seldom prove either good or large.

When the colts are about two years old, it is the best time to take them up, and make them tame ; and the year following back them that are to be for the saddle, only they must be used kindly at that age. The first year saddle colts should only be walked, and the second but seldom trotted, and that for a little way at a time. If they are any ways unruly and wild, at the first coming into the house, let them have no meat but

what they take out of their keeper's hand, by which means you will make them gentle without violence ; if that will not do, keep them waking, and want of sleep will cure the wildest horse that is. But to prevent his being so, use him from his foaling to be fed in winter at hand in the house ; and for some time when you back him first never ride him but with a horse before him, and always in the company of as many others as possible.

Draught horses being those principally used by farmers, we shall recommend to them the choice of such as are strong, well limbed, and as near as can be, such as are of a height ; for horses in a draught unequally suited never draw easy : and if they are well worked, let them be well kept, and then you may expect business from them. A good team of horses cannot well have a less allowance than forty quarters of oats a year, besides good hay and grass when they are out of the house. It will likewise be necessary that the farmer suit his horses to his ground, as well as his other cattle ; so that where his land is rich to have the larger, and where barren, the smaller sort of horses, except he has stone horses, and keep them always at hay and oats.

Of the diseases of horses, with their respective cures.

The farmer should be particularly attentive to the first sign of a disorder in his horses, for their diseases are easily remedied when seen in time. If any of them seem more sluggish than ordinary, it is a sign of some growing indisposition ; in which case he must give him a mess of warm grains, with a little salt, once in a week, and let him have twice the rubbing of the others. If this does not recover him, let him be blooded, and abate somewhat of his labour for a few days, but do not keep him altogether idle. This short course, if used in time, will prevent half the disorders of this creature ; but if it has been omitted, and a disease shews itself, the remedy must be adapted to the symptoms.

toms and appearances, as well as to the cause of the disorders. When horses are inclined to fall into disorders, bleeding every spring and fall is a very proper method. If this does not answer, purging is the next expedient; and these together will often prevent or carry off the causes of disorders.

Of purging a horse.

The day before the horse is purged, he must be kept from labour, and have a good quantity of good warm scalded bran with the water: then the next morning before he has any thing to eat, give him the following dose.

Take powder of cream of tartar, and powder of jalap, three quarters of an ounce; of aloes, a quarter of an ounce, and of powder of ginger two scruples; mix these up with butter into a mess, and break it into two balls; grease these with more butter on the outside, & give them to the horse, with a quart of warm weak ale.

This is the proper quantity for a strong horse; the proportion must be observed in all cases, but for those which are of a weaker habit, less will do. When the horse has taken the dose, he must be rid about for a quarter of an hour, a little more than a foot-pace, and after that set up an hour and half before he has any thing to eat; then he should have a little good hay, and after this some water milk warm. An hour after, give him a mess of scalded bran, and soon after this ride him out again. This will set it very properly to working; after which give him at times more bran scalded, and ride him out a little. The more bran he takes, and the more exercise he has, the better the physick will work; and he should be thus managed till it has done as much as is judged necessary; for the same dose may, by these means, be made to operate more or less as occasion may require. The aloes should be of the best kind: there is a coarse sort called horse aloes, but the difference in price, in a few doses, is very trifling, and the other is too coarse. Bleeding

Bleeding and purging, in the proper manner, will prevent half the diseases of horses : but we shall not leave the farmer at a loss in such other of their diseases as he may cure without the farrier ; the principal of which are as follow :

Of Strains

These are very common among horses that are worked hard, and if not taken care of in time, they bring on fixed complaints. When a strain is perceived early, the remedy is this :

Melt an ounce of allum in a quart of verjuice, and rub the place with this as hot as the hand can bear it. Repeat it two or three times, and it will effect a cure.

If the complaint has been long standing, the following is to be used :

Slice three ounces of Castile soap very thin, and put it into a pint of spirits of wine ; let it stand in a warm place till it is dissolved, and then put in an ounce of camphire. When this is likewise dissolved, it will be fit for use. Warm a little of it, and rub the place affected every morning and evening.

Of the Malanders.

This is a scabby disorder, attacking the back part of the fore-legs, against the joint of the knee. The scabs grow hard like warts, and have stiff hairs upon them. Carelessness in not cleaning the horse is the general cause ; and the following management will help the cure :

Clip off the hair from the place, and wash it very clean with soap-suds and a sponge. Boil a pound of fenægreek seed, and two pounds of marsh-mallow root cut small, in a gallon and half of water, till the liquor is thick like a jelly, and the ingredients are soft ; then wash the part night and morning with the liquor warm, with flannels dipped in it ; and afterwards tie on a
parcel

parcel of the ingredients wet with the liquor, leaving them on till the next dressing. Let this be continued till the cure is perfected ; and during the operation the horse may be kept to his usual work.

If the cure proves tedious, the blood is bad ; and in that case, during the time, there must be some flour of brimstone sprinkled all over his food.

Of sore Heels.

These are very troublesome to the farmer's horses : but he may cure them thus :

Put into a quart of white wine a quarter of a pound of green copperas, and once of Roman vitriol. Add the gall of an ox, after the salts are melted, and a quarter of an ounce of oil of vitriol. Rub the horse's heels with this every night and morning, and keep him clean at all times. The sores will soon be healed, and cleanliness for the future will prevent their return.

Of Cracks about the Feet.

These are much of the same nature with the former, but more obstinate. They are generally cured thus :

Boil fenægreek seed and marsh-mallow root in water, till it is as thick as a jelly, then wash and soak the cracks with the liquor warm, and tie some of the ingredients, that have been boiled soft round the whole part.

After the cracks have been thus dressed four or five times, they will grow soft at the edges, and the following ointment will then take effect :

Melt over the fire half a pound of yellow basilicon, and stir in half an ounce of powdered verdigrease ; mix it well, and then let it cool : spread this thick upon some leather, and after the part is well washed and cleansed, put it on. Renew this every day till the cure is effected.

Of

Of swelled Heels.

This is a common complaint of horses of the coarser kind, when they are hard worked and ill rubbed down ; to remedy which the following powder must be added to their food :

Take powder of antimony, flour of brimstone, and powder of turmerick, of each equal quantities ; mix up a large parcel of this, and sprinkle it among the meat that is given them. Continue this, only lessening the quantity, till the cure is perfected.

Of the Farcy.

This disease will spread all over the horse, if not checked in time. It is first seen in hard lumps upon different parts of the body, which soon afterwards break and run. The cause is over labour, or a surfeit of good food, after the horse has been half starved. When the lumps are found before any of them are broke, the remedy is this :

Bleed the horse twice at three days distance. Boil a pound of quicksilver half an hour, in a gallon of water : then pour it off, the quicksilver will be never the worse, but the water will be strong of its virtues. Put to this water six ounces of soap-lees, and one ounce of verdigrease : then add a pound of roll brimstone powdered, and a quarter of a pound of white hellebore in powder : shake it all up together, and rub the places where there are lumps. If any of them break out in sores, notwithstanding, mix four ounces of allum, and then use it as before. The horse must be kept clean, and rubbed with this every night and morning ; and all the time a little powder of antimony and flour of brimstone, mixed together, must be dusted over the food. If one or two sores remain after the rest are well, these must be burnt with the point of a red hot poker, and afterwards dressed with the same mixture. In a few days a black slough will come off, and they will be well soon.

Of

Of bloody Urine.

This is a dangerous accident among horses, and is generally occasioned by overstraining them at their work. To cure it use the following medicine :

Bruise in a mortar half a pound of the herb Robert Cranebill ; dissolve in the juice pressed out of this a dram of allum ; and two drams of dragons blood, and five grains of sugar of lead ; give this for a drench, and repeat it once in six hours till the horse is cured.

Of the staggers.

This disorder shews itself by the horse tottering as he goes, staggering, and moving his limbs weakly and faintly. When he is put up, he tosses his head about till his eyes swell and run, and at last he beats his head about against every thing that is near him. It is generally brought on by violent cold when the horse is over heated ; such as riding hard, and then going into water, putting him up without riding after it, or turning him hot from hard labour into cold grafs.

When the disease is discovered the horse must be blooded largely. If this does not take effect he must have a strong clyster made in the following manner.

Mix together three pints of hot emetic wine, and a quarter of a pound of ointment of elder : and the heat of the wine will melt the ointment into an oil, and the horse is to be thrown up when it is a little cooled.

Two hours after the clyster is come away, give another made of the scorix of liver of antimoney. Boil two ounces of this in two quarts of ale for six or eight minutes ; then take it off the fire, put in a quarter of point of salad oil, and mix it altogether. It must be thrown up in the same way as the first : and after this, the horse should be led out and walked a little. When he is taken in, give him some scalding bran with a little water warm. If he be not recovered by this, one hour afterwards give him a dose of Venice

nice treacle ; an ounce is the proper quantity, and it is best to give it in a pint of very good strong beer. Wine is commonly recommended, but the horses are generally sick and uneasy after it, when given this way, and not when given with the ale. All the time rub his legs frequently and hard, with Whisps of dry straw, and from time to time let him be walked out. This generally compleats a cure, but if the disease had got too much a head before they were applied, and he does not recover by them, he must be blooded in the nostrils. Cut a thin piece of an oak twig, sharpen it to a point, then split it, and thrust this up one nostril and then the other. This will make him bleed freely enough, and will do great service. If he still knocks his head about, the following paste must be put into his ears.

Pound some bears foot root, penny royal, rue, and angelica ; mix these up with a spoonful of pepper, and a little spirit of wine ; fill both the ears with this, and sew them up to keep it in, only leaving a hole, by which to pour in a little fresh spirits of wine from time to time, to moisten the ingredients. With these assistances, there is little doubt of his getting well : and the following clyster will assist in it :

Boil a double handful of mallow roots in two quarts of water, for a quarter of an hour ; strain it off and add two ounces of polycrestum salt, and an ounce and half of Venice treacle, and half a pint of sallad oil. Give this warm as a clyster the same way as the others ; after this, though the horse seem well, the clyster with antimony must be given every other day twice more, and care must be taken that he gets no cold for several days after.

Of the Vives.

This disorder shews itself by the swelling of the kernels of the neck, which is often so inflamed as to be dangerous.

The

The horse must be blooded largely ; then bruise half a pound of rue, and a quarter of a pound of yellow stone erop ; put a little ale to it, and then press out the juice : add to this half a spoonful of pepper, and put it into the ears, sewing them up, to keep it from running out directly. If he is not well by the next day, let it be again repeated.

Of the Cholick.

When a horse has this pain violently it is as dangerous as the staggers, and care must be taken of the first approaches of the disorder ; for when it comes to that degree which the farriers call convulsions of the bowels, and which is much the same with what we call a twisting of the guts, the case is nearly desperate.

In the first approaches of the cholick, the horse's belly may be perceived to be swelled ; he looks uneasy, lies down, rolls himself about, and gets up again ; and his mouth is hot, and his eyes look red. After it is come to the more desperate state, he stamps furiously upon the ground, rubs his sides hard against the wall, stretches out his legs and neck, and gives all possible signs of the greatest uneasiness.

This disorder is generally occasioned by the creature's eating too greedily of coarse green food ; and sometimes by sudden cold when he is hot ; sometimes also by the eating unwholesome herbs, as these creatures will do when they come into fresh pastures, tho' they would not touch the same plants in those grounds where they have been used to feed. Very often the following medicine will produce a cure ;

Scald some bran, and put to it a tea spoonful of oil of anniseed, stir it together and give it warm. If this does not answer, dissolve a quarter of an ounce of philonium romanum in a pint of pepper-mint water, and give this for a drench. In case this fails recourse must be had to clysters.

Boil two handfuls of mallow leaves, and a quarter of

a pound of cumming seed in three quarts of water, for a quarter of an hour ; put to this a quarter of a pound of sugar, then strain it off, and add a quarter of a pint of fallad oil, and two spoonfuls of oil of turpentine. This must be given warm, and the horse must be walked gently after it. After which give him clean hay, warm water, and bran ; and if he does not grow well directly upon this, repeat the dose of philonium romanum once in eight hours, and put oil of anniseed in all his bran.

When the case is come to the worst before care is taken, or if the worst symptoms come on in spite of these remedies, the horse must be blooded. Then instead of the philonium and pepper-mint water, give it to him thus :

Dissolve a dram and half of the philonium in a pint of mountain wine ; add to it a quarter of a pint of fallad oil, and a full tea spoonful of spirit of sal armonica ; give this as a drench, and ride the horse gently half an hour after he has taken it. If this does not succeed, mix a grated nutmeg and a quarter of an ounce of jalop, in a quarter of a pint of gin ; add half a quartern of sweet oil, and give it him as a drench. One or other of these must be given once in three hours, and repeat the clyster as often as he seems violently in pain. He must be rid softly about at times ; and by this means the fit, if it be ever so bad, will be carried off. But care must be taken that it does not return ; and this will be chiefly prevented, by giving him only very good dry food, scalded bran, warm water, and sometimes a little anniseed mixed with the bran.

Of Colds.

As soon as this disorder is perceived, the farmer should give the horse the following medicine :

Bruise three ounces of fresh liquorice root, and boil it well in three pints of new wort, or else of very mild ale. Strain off the liquor, and put to it a quarter of

a pound of honey, and two ounces of salad oil ; give this as a drench warm early in the morning and repeat the same every morning, till the complaint is thoroughly removed.

This will at any time cure a cold, that is freshly caught. But where the disorder is longer standing, the following balls are the best remedy :

Weight six pound of bean meal, and mix it with half a pound of powder of liquorice, a quarter of a pound of flour of brimstone, three ounces of linseed powder'd, two ounces of anniseed, and common feed and fennugreek, of each an ounce and half ; bay and juniper berries, of each two ounces ; and flour of benjamin half an ounce. Mix all these powders very well, by rubbing them together in a large marble mortar ; then beat up the yolks of ten eggs, with two bottles of mountain wine ; stir into this two pounds of thin honey, and a pint of salad oil. When this is perfectly mixed, pour it all into the mortar, and beat it up with the powders into a stiff paste, that will easily roll into balls. If it be too moist, add a little flour to stiffen it ; and if too hard, a little wine. When it is fit to roll, make it up into balls of the bigness of a large wash ball, rolling them up in the hands very even and round ; then lay them upon a dry sieve turned bottom upwards, in a cool airy room, to harden and dry. They will thus keep a year or two, and be always ready and convenient, one ball being the proper dose.

The farmer should never be without these in his house, for horses are very subject to these disorders. When they are to be given, the ball must be melted in a sufficient quantity of warm water, and administered morning and evening for a fortnight or three weeks together within which time there is little doubt but the cure will be accomplished.

Of Surfeits.

These are often brought upon horses by overworking and neglect, in which case the stomach will be so

disordered that he cannot eat his food. He will look tired, weak, and dispirited, and will pine himself to death, if not relieved in time. The sooner care is taken the better, and the medicine must be of the cordial and refreshing kind.

Pour a quart of boiling water upon half an ounce of salop : when this is grown to a jelly, add to it half an ounce of Venice treacle, and give it him warm in the evening. The next morning dissolve half an ounce of mithridate in half a pint of good mountain wine, and give him that as a drench.

After he has had this, walk him out a little, and when he comes in, rub him well with dry straw, and then offer him some very fine hay. He will eat a little, and it will do him good : during the rest of the day give him at times a little hay in the same manner, and at night repeat the mithridate and wine. This must be done for four days ; and all the time he must have good food, a little exercise, and frequent rubbing. This will absolutely recover him, and in a day or two more he will be fit to work.

Of Lethargies.

This disorder is very common among horses, and is what farmers call the sleeping disease, or sleepy evil. Bad food is the common cause, and sometimes too much rest, when the creature has been used to labarious service. He will grow sluggish, heavy, and sleepy, and when waked by the whip, he will presently fall into the same droning way again ; at length he will neglect his food, and soon be lost. The remedy for this is thus :

Bruise in a marble mortar a good handful of yellow stonecrop, called wall-pepper ; put to it a gill of white wine, and when well worked together, press out the juice. Set this by to be ready, rub together a quarter of a pound of elecampane and a dram of pellitory of Spain, both in powder. Slice very thin a quarter of

a pound of Castile soap, and put it to these powders ; work these well together, and then put in the juice : when all is very well mixed, put in as much liquorice powder as will bring the whole to the consistence of a paste. Put this up in a stone jar, and keep it close pressed down. The dose is a piece as big as a walnut : this must be greased over, and given him every night and morning, till the strength of the disorder is overcome ; and to prevent a return, repeat it every morning after.

Of a feverish heat.

This disorder will wear a horse down of itself, and very frequently it will bring on other disorders. When the horse is first seized with this, he appears weak, and is restless ; changing posture continually, lying on the ground, stretching himself, getting up again slowly, and then rolling about again. On putting your hand to his mouth, his breath is found hot, and his tongue and jaws are red and inflamed. This is a stage of the disease in which it is easily perceived and easily cured. To effect the latter, make up the following composition ;

Beat to powder twenty-five grains of salt-petre, and dissolve it in a gill of soft water ; add to this two ounces of thin honey, and three ounces of salad oil ; then put to the whole half a pint of new milk, and straining it all up together, give it in the morning, keeping him an hour after it without any food. After this let him be worked a little, brought in cool, well rubbed, and fed with fresh vetches, or any other of the small pulse, new cut. Let this be practised three days, and it will generally perfect a cure.

Of the Anticor.

This is a disease that affects the beast. The horse is uneasy, and breathes hard ; his neck grows stiff, he walks bad, shakes at times, and has little stomach to

his meat. The cause of this is eating too plentifully of some rich fresh food. Horses, that are turned into clover without due care, very often fall into this. The remedy is easy if the disorder be taken in time, because nothing more is required than to cool and open the body. Let the horse be blooded immediately, and the next day give the following purge :

Mix together an ounce of powder of aloes, half an ounce of cream of tartar, and a quarter of an ounce of powder of anniseeds. Work them up with some fresh butter into a soft paste, make it into a ball, grease the outside of this ; and give it in the morning with a pint of warm ale after it.

If he grows better upon this, nothing need be done but to repeat the purge for twice more in the morning. If his tremblings grow worse, and he falters in his gait, and grows stiff about the breast, the bleeding must be repeated ; and if twice does not answer the purpose, he may be blooded as far as four times. There is no way to conquer this disease but by bleeding and purging ; and however the creature may be weakened by them, he will get the better of the disorder.

Of the Gargle.

This is an inflammation of the head and throat, to which common and hard kept horses are very subject towards the fall of the leaf. The disease is discovered by the horse being restless and hot, his head swells, and he rattles in the throat ; his eyes swell and he rolls about the ground, rubbing his head and neck against it, and against the walls or trees. This disease is catching ; therefore the horse that has it must be immediately separated from all the others ; and for fear of any infection before this was discovered, it will be necessary to bleed all the horses you have.

This disease generally arises from unwholesome food and bad water ; and it is most commonly after drought in summer, when the ponds are almost dry. The first step to be taken in order to cure the horse must be bleeding ; and as soon as that is done he must be put up

in a dry warm stable, and the following drench prepared for him :

Dissolve half an ounce of mithridate in two quarts of ale ; then add one dram of powder of saffron, and four spoonfuls of the juice of garlick ; divide this into two parts, and give one at night, and the other in the morning. He must not have any food for four hours before, nor for one hour, after these doses ; and they must be repeated every morning and evening for two days ; and after this each morning only for two more. During this time his diet must be well regulated ; he must have boiled oats and malt ground given him in a mash warm ; and he must be frequently and carefully rubbed. This single medicine, with these regulations, will generally perform a cure ; and all the care afterwards is to keep him from coarse food and bad water.

Of a Ravenous Appetite

This is a complaint not uncommon among horses, and the farmer should look to it upon a double account because they eat too much, and because it does them little good. Horses that have this disorder swallow their food without chewing ; they snatch their provender ; and what they eat is seen in their dung undigested. They grow weak, and will in a little time be spoiled, if care be not taken to remedy this evil.

Mix together a gallon of milk and three pints of oil ; and stir in by degrees some rye flour, till it is as thick as can well be swallowed. Give a large drench of this every morning, and always half an hour after, give him by hand a little sweet hay : then set him up without any thing more, and let him be kept quiet. After this let him be taken to his usual labour, but worked only moderately ; and when he has been out three hours, bring him cool in, and give him some more new and fine hay : but let it be only a small quantity and give even this slowly. After this work him again for some hours, and then feed him in the same

same manner, by a little at a time ; but give so much now, that he can eat no more : after this set a large quantity before him, and he will not touch it. Thus the disease will be conquered, and a little care and attention will prevent the return of it.

Of the Yellows.

This disease in a horse is much the same with the jaundice in the human species, and may be known by the same signs, and cured by the same medicines. Bad food is generally the cause of it, and sometimes immoderate labour. The eyes and skin within the lips look yellow, he grows faint, loaths his food, and declines, sweats profusely, and will fall down as he goes or stands with real weakness. As soon as the disorder is perceived give him the following drench :

Beat together in a marble mortar half a pound of great calandine fresh gathered, a quarter of a pound of young nettles, and the same quantity of wormwood ; press out the juice, and add to it a quarter of an ounce of powder of turmeric, and half a pint of vinegar. Put half of this into a pint of warm ale and give it immediately : the other half must be given eight hours after in the same manner.

If the disease is of long standing, bleed the horse moderately ; then bruise a double handful of wood-lice in a mortar, put to them half a pound of woody nightshade, a quarter of a pound of hemp-seed, and a handful of celendine ; bruise all together, and pour in by little at a time a quart of hot ale ; press out the ale and juice hard, and give it at two doses. Repeat the bleeding the next day if it appear necessary, and give the same medicine every night and morning, till he is perfectly well. In all this time he must have only dry food, and that very sweet and good in its kind ; and now and then some hemp seed should be given with it. He must have some exercise, but he will not be fit for hard labour till he is perfectly recovered.

Of casting up the Food.

This disorder arises from an overload of some new meat. When a horse is turned into fine clover carelessly, or when he eats largely of the fresh pulse kinds often, his stomach falls into this disorder; and he will cast up every thing he swallows, water as well as food. The remedy for this disorder is as follows:

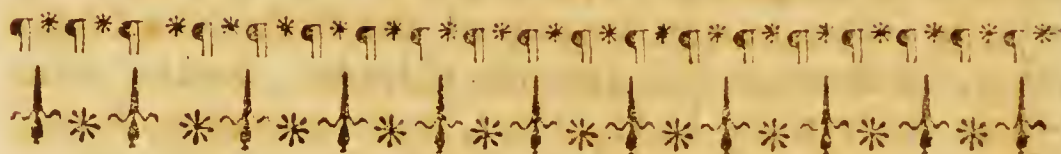
Dissolve in a pint of boiling water half an ounce of mithridate, a quarter of an ounce of philonium romanum, and an ounce of honey; add to this a dram of powder of cinnamon, and a pint of red port wine; and give it as a drench. He must not have any thing for two hours after it, and then only a little sweet hay. After this feed him carefully, and give him moderate labour or exercise for three days, and there will seldom be any occasion for repeating the drench; but if there should, once more will make the cure effectual.

Of Weakness and Decay.

These generally arise from a horse having been too much worked; in which case nothing but rest, good food, and nourishing medicines, can save him. The principal remedy in this case is the restorative balls, the manner of making which is thus:

Mix together two ounces of cinnamon in powder, four ounces of elecampane, two ounces of anniseed, one dram of powder of saffron, and one ounce of red rose buds dried and powdered. Grind all these well together, and mix them up with five pounds of the flour of thatches, press out the juice of mugwort to the quantity of two pints; add this to the powder and flour; then dissolve a pound of honey in two quarts of white wine, and add this to the rest; put in a pint of fallad oil, and beat all up into a paste. Roll it into balls as big as a goose egg, and give him one of these dissolved in warm ale every night. He must be kept clean and dry, and frequently well rubbed. By these means

means he will grow gradually well, and the farmer may have several years more profit from his labour.



C H A P. V.

Of Oxen and Cows.

THE farmer should be particularly careful, in the choice of these cattle, to consider the nature of his ground. If his pasture be rich, he must purchase the larger breed; if otherwise, the smaller sort. The Lancashire is the largest, and the Scotch and Welch the smallest; but there are many sorts between. The natural breed of Yorkshire are middle sized, mostly red and hardy; they yield very good profit, and will thrive on almost any soil. He must chuse all his cattle of this kind of one sort and colour, as well as one size. The breed will depend so much on the bull, that great care should be taken to chuse one that is strong, well made and healthy: he should have a sharp, quick countenance, his forehead broad and curled, his eyes black and large, his horns long, his neck thick, his belly long and large, his hair smooth, his back straight and flat, his buttocks square, his thighs round, his legs straight, and his joints short. This is the best kind for breed, and will produce the best oxen or draught.

No less care must be taken in chusing the cow, for the breed will take partly after the one and partly after the other. She must have a broad forehead, black eyes, great clean horns, her neck long and thin, a large deep belly, thick thighs, round legs, short joints, a white large deep udder, with four teats, and her feet large. The size of the cows, as of all other cattle, must

must be suited to the goodness of your land, though the largest commonly give the most milk ; but whether you design them for breed, fattening or milk, let them be such as come off a worse ground than your own.

The cow must not be put to bull till she is three years old ; and the best time is about the month of July. If she has had a calf before it must be taken from her, and she must be milked for three days after to prevent her udder being sore. The red cow is reckoned to give the best milk, and the black to bring the best calves.

About a fortnight or three weeks before a cow calves put her into good grass ; or if it be Winter, give her hay, and when she has calved keep her that day and night in the house, and let the water she drinks be made luke-warm ; turn her out about the middle of the next day, if she be strong and well cleaned, and take her in two or three nights more, giving her water a little warm every morning.

There are two ways of breeding of those calves you design to rear ; the one is to take them from the dams after they have suckled about a fortnight ; and the other to let them run with the dam all the year. The latter, however, is the common way used in the cheep-breeding countries, and is reckoned to make the best cattle.

The most proper time for weaning calves is from January to May. Let them have milk for about twelve weeks, only a fortnight before you wean them, let water be mixed with it ; and after they have drank milk about a month, take some of the sweetest hay you have, and put little whisps of it into some cleft sticks, which place so as they may easily come at it to learn to eat. After Lady-day, when the weather is fair, they may be turned to grass, but you must take them in a few nights at first, giving them milk and water. Your grass must not be too rank, but short and sweet, that they may get it with some labour.

When your calves are weaned, and you have determined

mined which to keep of the males for bulls, let the others be gelt for oxen, which the sooner you do the better ; and the best time and least dangerous is when they are about ten or twenty days old.

The largest oxen are the most advantageous if the ground be rich enough to maintain them ; if not, such as are suited to its quality will yield the most profit. A good ox for the plough must be neither too fat nor too lean ; the body should be large, the legs long and strong, the eyes full, the horns large, and the coat smooth and even : he must also answer to the goad, be obedient to the voice, and well trained ; but it is only gradually, and by beginning early, that the ox can be brought willingly to bear the yoke, and be easily governed. At the age of two years and an half, or three at the latest, you must begin to tame him, and bring him under subjection ; if delayed longer he becomes froward, and often ungovernable. The only method of succeeding is, by patience, mildness, and even caresses, for compulsion and ill treatment will only disgust him ; stroaking him gently along the back, clapping him, giving him occasionally boiled barley, ground beans, and such other aliments as please him best, all of them mingled with salt, of which he is very fond, will prove of the greatest use. At the same time his horns should be often tied, and some days after the yoke is to be put on his neck, and fastened to a plough, with another ox of the same size ready trained ; these are to be tied together at the manger, and in the same manner led to the pasture, that they may become acquainted, and accustomed to have one common motion. He must also be indulged, and labour only at short intervals ; for till he is thoroughly trained he tires himself very much ; and for the same reason he must be fed more plentiful than usual. After he has drawn the plough from his third to his tenth year, it will be adviseable to fatten and sell him, as being then of better flesh than if he was kept longer.

The

The age of this creature is known by his teeth and horns. The first fore teeth which he sheds at the end of ten months, are replaced by others, larger, but not so white ; at six months the teeth next to those in the middle fall out, and are also replaced by others ; and in three years all the incisive teeth are renewed. They are then equal, long, pretty white : but as the ox advances in years, they wear, become unequal, and black. It is the same in the bull and cow ; so that the growth and shedding of the teeth are not affected by castration, or the difference of sexes. Nor is the shedding of the horns effected by either ; as both bull, ox and cow lose them alike at the end of three years ; and these also are replaced by other horns, which, like the second teeth, remain ; only those of the ox and cow are larger and longer than those of the bull. The manner of the growth of these second horns is not uniform, nor the shooting of them equal. The first year, that is, the fourth of the ox's age, two small pointed horns make their appearance, nearly formed smooth, and towards the head terminated by a kind of button. The following year this button moves from the head, being impelled by a corneous cylinder, which also lengthening, is terminated by another button, and so on ; for the horns continue growing as long as the creature lives. These buttons become annular joints, which are easily distinguished in the horn, and by which the age of the creature may be readily known ; counting three years for the point of the horn to the first joint, and one year for each of the other intervals.

The diseases of these creatures are fewer than those to which the horse is incident, and in general they are more easily cured ; the principal of these, together with their respective remedies, are as follows :

Falling of the Palate.

This is a disorder very troublesome to cattle, but if taken in time the cure is easily obtained. Too much

E

exercise

exercise in driving, or at labour, is the general cause of it. The creature groans, and is very uneasy, and cannot eat till it is set right. When neglect has occasioned it to be got up with difficulty, the beast should be sold for slaughter; but when taken in time it will be cured by the following method.

Mix together an ounce of honey, and a quarter of an ounce of pepper: throw the beast down, and getting a hand into its mouth place the palate right, and rub it over with some of the above mixture; then let him get up, and a little after bleed him. Let him eat only fresh meat, and he will not relapse.

Of the Gargil.

This disease is an inflammation about the neck, beginning in the outward part, and by degrees affecting inwardly. The first sign of it is a hard hot swelling in the dewlap; and this spreads afterwards to the breast and throat. The first thing must be to bleed the creature largely; then make an opening in the dewlap where the swelling is, and put in as much of the leaves of bears-foot, pounded to a mash, as the opening will hold. Sew this in with two or three stitches; it will cause a running, and give a stop to the disease. When it has run three days the threads must be cut, and the bears-foot taken out. Then melt some black besilicon and dip in it a pledget of tow; put this into the wound just warm, and repeat the dressing every day till it is healed. If the disease be obstinate, and the swelling encrease, bleed again a day or two after.

Of the Garget.

This is a swelling and inflammation of the head, affecting in particular the eye and lips, and in the end inflaming also the gums and tongue. The creature must be blooded every day till the inflammation is subsided.
Immediately

Immediately after the first bleeding give two ounce and a half of Epsom salt, dissolved in a pint of warm ale; after which, night and morning, let him have the following drench:

Take half a pint of warm ale, a quarter of a pint of juice of plantain, two scruples of salt prunella, and a quarter of an ounce of Venice treacle. Mix all these together, and give it in one dose. These methods will seldom fail of producing a speedy cure; but the beast must be kept clean, dry, and quiet.

Of Worms in the Bowels.

This disorder may be known by the creature's growing restless, pining away, and being hot and feverish. They will never thrive till perfectly cured, which may be effected by the following method.

Cut to pieces half a pound of favin, and a quarter of a pound of bears-foot; beat these in a mortar with a pound of coarse lump sugar, till they come to a soft paste; then add an ounce of green copperas, and two ounces of powder of coralline. Make up the whole into balls about the size of a walnut, and give one every morning. If this should not succeed alone, give after every dose a quarter of a pint of fallad oil.

Of Bloody Urine.

This disorder arises from the eating of green beetles, upon the twigs of shrubs in the hedges, where the cattle browse. The certain remedy for it is this:

Take a quantity of that Cranes-bill, which is called Herb Robert, bruise it in a mortar, and sprinkle it with red port wine; when it is well mashed press out the juice, and give a quarter of a pint of it every night and morning. If three doses do not perfectly stop the complaint, let the creature be blooded, and continue the medicine as before.

Of

Of Surfeits.

These are always attended with a fever, which is often very dangerous. At first the creature appears very uneasy, then hangs down his head, foams at the mouth, breathes hard, and trembles all over. In this case the first thing is to bleed. If it be an ox, a quart of blood is a right quantity ; but if a cow, a pint of very little more is sufficient.

Boil in two gallons of water a pound of fresh leaves and roots of Herb Bennet, and a quarter of a pound of agrimony ; strain off the liquor, and give it the creature warm for drink. An hour after the beast has had as much of this as it will drink, give a little fresh-mown sweet grafs from a dry pasture ; and some hours after repeat the drink again. At night give a quarter of an ounce of mithridate dissolved in half a pint of warm ale ; and continue this method till the cure is perfected.

Of Purgings.

These are generally occasioned by bad food ; but they will be very hurtful sometimes, proceeding so far as to bloody stools. In the first stage of the disorder give the following mixture :

Boil half a pound of Bistort, a quarter of a pound of Tormentill, and two ounces of pomegranate, rined, in three quarts of water, till there is but one quart left. Dissolve in this a quarter of a pound of Diascordium without honey, and add a pint of red port wine. Half a pint of this is to be given warm night and morning. If the bloody stool should still continue, add two ounces of Japan Earth, and three drams of Rock Allum ; give it in the same way as the other and there will be little doubt of a cure.

Of

Of Inward Sickneſs.

This is a term by which farmers expreſs an obſtruction in the liver or ſpleen, which makes the beaſt heavy, ſlothful and hot. It breathes with difficulty, and the lips and mouth are dry. The remedy is this :

Bruise a large quantity of Woody Nightſhade, called Bitterſweet ; moiſten it with ſome white wine while beating, and then preſs out the juice. Give the beaſt a quarter of a pint of this warm, with an ounce of honey melted in it ; and repeat the doſe night and morning. Be careful to have the right woody nightſhade, for the others are poiſonous.

If the cure proceeds ſlowly, boil a great deal of fennelroots in water, and give it to the creature for common drink. And if this be not ſufficient, add to every doſe of the medicine three ſpoonſful of the juice of woodlice.

†*† †*† †*† †*† †*† †*† †*†
† †*† †*† †*† †*† †*† †*† †

C H A P. VI.

Of Sheep.

THESE creatures differ no leſs in their reſpective breeds, than in their ſize, and the quantities and goodneſs of their wool. If the farmer has a rich paſture, he ſhould chuſe the beſt ; but if otherwiſe, he muſt be content to ſuit the kind to the nature of his ground.

With reſpect to the breeds there is no certain direction for their choice, becauſe they are often mixed ; but in general the large Lincolnſhire ſheep are fitteſt for rich paſtures, that lie upon the banks of ſalt water rivers, or ſuch as are within the influence of the tide. The beſt for rich paſtures out of the reach of ſalt water is the Leiceſterſhire breed ; and for thoſe whoſe graſs ground

ground lies high, the Hertfordshire. These last, though of a smaller kind, are yet very profitable. For a barren pasture the Worcestershire sheep are best.

Whatever breed the farmer chuses, he must be careful that the sheep are good of their sort. The wool must not be harsh, but oily and soft; the sheep must be well shaped, and large boned for the size. The rams should be chosen with particular care, because the breed will in a great measure depend on them. They must have soft and well curled wool, with the skin white under it; the body should be long, the forehead large and rising, the eyes full, and their looks chearful. The ewes must be large bodied, their neck arched, round upon the buttocks and short legged.

The farmer should not purchase those sheep that are in any part naked; for the loss of wool is generally the consequence of some inward or outward disorder. He must be careful, likewise, to examine the mouth. for if the gums be not red and the teeth fast, the creature will come to little good. The time of buying them in when intended for breed, is two years old, and they will then breed five years very well. The age of a sheep, like that of a horse, is known by the mouth. When a sheep is one shear, as the farmers express it, there are two broad teeth before; when it is two shear, it will have four; when three, six; when four, eight. After this their mouths begin to break.

The quality of the land makes a material difference in the breed of the sheep. The flat pastures produce straight, tall sheep, and the barren hills and downs breed square short ones; woods and mountains breed tall and slender sheep, but the best of all are those bred upon new plowed land, and dry grounds. On the contrary, all wet and moist lands are bad for sheep, especially such as are subject to be overflowed, and to have sand and dirt left on them. The salt marshes are, however, an exception to this general rule, for their saltiness makes amends for their moisture, any thing of salt,
by

by reason of its drying quality, being of great advantage.

Before the rams are put to the ewes the farmer should consider at what time of the spring his grafs will be fit to maintain them and their lambs, and whether he has turneps to do it till the grafs comes ; for very often both the ewes and lambs are destroyed by the want of food ; or, if this does not happen, if the lambs are only stunted in their growth by it, it is an accident that they seldom recover. The ewe goes twenty weeks with lamb, and therefore it is easy to calculate the proper time for her to take ram. The best time for them to yeau is in April, unless the farmer has very forward grafs, or turneps, or the sheep are field sheep, where he has not inclosures to keep them in, then it may be proper they should yeau in January, that the lambs may be strong by May-day, and be able to follow the dam over the fallows and water furrows ; but then the lambs that come so early must have great care taken of them, as, indeed, should all other lambs at their first falling, otherwise, while they are weak, the crows and magpies will pick out their eyes.

If you save the grafs and weeds that grow in the land that you design to fallow in Winter, that is from Crhristmas, and turn your ewes and lambs into them in March, if the Winter is mild it will be of gaeat advantage to them.

When sheep are turned into fields of wheat or rye to feed, it must not be too rank, for if it is, they will be subject to scower. Ewes that are big should be kept but bare of food, for it is very dangerous for them to be fat at the time of their yeaning ; except, indeed, about a fortnight or three weeks before they may be pretty well fed to strengthen them.

When a ewe is near yeaning, she must be separated from the flock, and watched, in order to be assisted ; the lamb often presents itself athwart, or with its feet first ; and in this case, without assistance, the life of the
ewe

ewe would be in danger. After yeaning, the lamb must be raised on its feet; at the same time all the milk in the ewe's udder must be milked out, it being vitiated, and very noxious to the lamb, which must be kept from sucking till the udder is filled with fresh milk. The lamb must be kept warm, and for three or four days shut up with the ewe, that it may learn to know her, during which time the ewe must be fed with good hay, barley-meal, or bran mixed with a little salt; and water with the chill taken off, and mixed with a small quantity of flour, bean-meal, or ground millet, given her to drink. At the end of four or five days she may be gradually fed like the rest, and sent with the flock, taking care that she be not driven too far, lest her milk be heated. Some time after when the sucking lamb has gathered strength, and begins to play, no farther care is requisite; it may be left to follow its dam to the pastures.

To bring up lambs yeaned in the months of October, November, December, January, and February, they must be kept in the house during the Winter, going out only in the morning and evening to suck; but in the beginning of April they may be turned into the open fields. Some time before this a little grass should be daily given them, in order to habituate them by degrees to their new food. They may be weaned at the end of one month; but it is better to delay it for six weeks or two months. White lambs without spots are always preferred to the black or mottled, white wool being more valuable than any other.

The best time for cutting of lambs is at the end of five or six months, or even a little later in Spring or Autumn, when the weather is mild. This operation is performed by two different methods; the most common is by incision, when the testicles, which are easily separated, are drawn out through the wound. The other is performed without incision, by tying a string very tight round the scrotum above the testicles; for this compression.

compression destroys the vessels which supply them with blood and juices. The lamb, on castration, becomes tickish and dull, so that it will not be improper to give him for two or three days a little bran mixed with a small quantity of salt, to prevent a loss of appetite, which is often occasioned by this operation.

The most proper season for shearing of sheep is about the middle or latter end of June, because it is good for them to sweat a little in their wool before you cut it, and they must be well washed, as it will be a great help to the price of the wool.

After they are washed, let them go two or three days in clean dry ground before they are shorn; in doing of which great care must be taken not to hurt them with the point of the shears, nor yet cut their skins because of the flies, and observe that the wool be well wound up. Some shear their lambs too, which they do close behind, but very little before, especially the first year; but before they are shorn, great care should be taken to tag them, that is, to clip away the wool of their tails, and behind, that the dung may not hang on it, which otherwise will occasion them to be sore, and the flies to blow them.

The weathers have generally more wool than the ewes, and it is also better. That of the neck, and the top of the back is the prime; that of the thighs, tail, belly, throat &c. is not so good; and the worst is that taken from dead beasts, or such as are sick. White wool is also preferred to the grey, brown, and black, as it may be dyed of any colour. Strait wool is better than curled; and it is even said that the weathers whose wool is too much curled, are not in so good a state of health as the others.

Another very considerable advantage may also be had from sheep by folding them, that is, by leaving them for a proper time on lands intended for improvement. In order to this the ground must be inclosed, and the flock shut up in it every night during the Summer.

These

These inclosures are made with hurdles, which are so contrived as to remove from one spot to another as occasion may require. By this means the dung, urine, and heat of the body of these creatures, will in a short time bring the ground into heart, whether exhausted, or naturally cold and barren. An hundred sheep will in one Summer enrich eight acres of ground, which will continue its fertility six years.

Of the Diseases of Sheep.

Among the various disorders incident to these creatures the most fatal is the Rot, which is produced by wet lands, coarse food and want of shelter. In this case, the sheep should be removed from such places at the first appearance of the disorder; and the sick separated from the sound, because the disease is spreading.

The signs of the Rot are feebleness, foulness of the skin, and particularly a dull and heavy look about the eyes. The gums grows white, the teeth foul, and the creature will be weak and scarce able to stir. Good air and shelter, and wholesome food and water are very great requisites for recovery; for the Rot is rather a general decay than any particular disease. To effect a cure, however, to the above management, add the following:

Beat to pieces a quarter of a pound of juniper berries, and one ounce of bay berries, two drams of grains of Paradise; and add to these a pound and half of bay salt, and half a pound of loaf sugar; grind all well together and keep it dry. Give the sheep dry sweet hay in troughs, and sprinkle it with this powder. Boil a pound of masterwort root in two gallons of water, and give this to them mixed with the water they drink. To those that are still worse, give also three drams of mithridate dissolved in a little warm ale every morning.

Of the Fever in Sheep.

This disorder first shews itself by an inflammation in the eyes and mouth; the feet grow hot at the same time, and they are uneasy and restless. The usual causes of this disorder are cold and wet feeding; and when the whole flock is distempered together, as is sometimes the case, it is as fatal almost as the rot. They must be removed to a piece of high and dry ground, and have shelter. Those that are ill must be bled; after which give them the following medicine.

Dissolve half an ounce of mithridate in a pint of warm ale; divide this into two doses, and give one at night, and the other in the morning. If two doses do not produce a good effect, add ten grains of powder of contrayerva to each dose following, and in general two or three days will compleat the cure.

Of a Purging.

This disorder is always dangerous to sheep, because their natural condition is to have their stools hard. Sometimes a feverish heat is the cause of a Purging; and then it is not to be considered as a disease, but as one of Nature's remedies for a worse. In other cases medicines must be used, and the following will generally prove effectual:

Boil a pound of logwood in three quarts of water till it is reduced to two, put to this an ounce of diascordium without honey, and give a quarter of a pint of it warm four times a day. This will stop the Purging, and the creature will be well in a few days.

Of Glddiness in the Head.

This is a complaint common among sheep that are too richly fed. The farmers call it flurdiness, and the Purdy evil.

To cure this disorder the sheep must be bleed three quarters of a pint ; then dissolve an ounce of assafœtida in a quart of water, add four spoonsful of juice of garlick, and two ounces of honey ; give a quarter of a pint at a time once in three hours, till half is taken : then the rest at doses night and morning. Put the sheep into hilly pasture ground, and they will escape a return.

Of the Staggers.

This is as common among sheep as horses : and that giddiness of the head abovementioned is but a lesser degree of it. In this case the sheep trembles, and throws it self down, beats its head about, and appears to be in the greatest misery.

As soon as the disorder is discovered, bleed the sheep three quarters of a pint ; then bruise a quantity of wood betony leaves, and half as much penny-royal ; wet them with white wine, and press out the juice. Give this a quarter of a pint at a time, once in two or three hours, till the symptoms abate. If it does not answer quickly, give the assafœtida medicine before directed, and this alternately, till the creature is perfectly recovered.

Of Coughs.

If early care is not taken of this disorder, the lungs will be inflamed, and the creature will die of an absolute consumption. No sheep can be cured of this in the pasture where the disease was got, for that is always a damp one ; the first thing, therefore, to be done, is to remove them into one that is dry and healthy, where the air is clear and the grass sweet.

Press out the juice of colts-foot leaves, fresh elecampane root, liquorice, and hedge mustard, of each equal quantities. beating them in a mortar and moistening them with some mild ale ; to a quart of the juice add
five

five ounces of honey. Give a quarter of a pint of this for a dose, once in twenty-four hours. Little more will be required to prevent all bad consequences, and make the cure effectual.

Of Wheezing in the Throat.

This disorder is principally incident to those sheep that are fed in low grounds. The first thing to be done is to drive them to a dry pasture, and take from them about eight ounces of blood. After this bruise equal quantities of marsh mallow root and penny royal leaves, with one fourth part as much garlick; wet these as they are bruised with some warm water, and then press out the juice. In a quart of this dissolve a quarter of a pound of honey, and give the sheep a fourth part of it for a dose. These remedies will always cure them, if taken in time.

Of St. Anthony's Fire.

This is a contagious disorder, and the sheep that have it must be immediately separated from the rest of the flock. Let them be first bled, and then use the following medicine :

Bruise half a pound of linseed, and the same quantity of marsh mallow root ; boil them up in water till it is as thick as a jelly ; spread this upon the inflamed part, and when it is dry, let it be repeated. The next day dissolve an ounce of Glauber's salt in a quarter of a pint of water, and give it the sheep, then wash the part with weak lime water, and the disease will be soon cured without danger of a relapse.

Of the Red Water.

This is an inflammation that rises into blisters, whereas the former is dry. It appears upon the breast and belly, and is very dangerous. This disorder is catching ; therefore first separate those that have it from the rest, and then give them the following medicine :

F

Mix

Mix half an ounce of crude antimony powdered, and two ounces of flour of brimstone, with as much honey as will keep them together in a paste ; and give this at four separate doses. Bruise some fresh water dock and stinging nettle leaves, and then press out the juice. Dissolve a fourth part of the paste in a quarter of a pint of this juice, and give it every morning. Let the sheep have sweet grass, a dry pasture and good water. Cut the blisters as fast as they appear, and dress the places with ointment of elder.

Of the Cramp in the Legs.

This disorder frequently seizes the sheep in Autumn, especially such as have lain under the drip of trees ; for which reason some call it the wood evil. Turn the sheep into an upland pasture, keep them warm and dry, and give the following medicine :

Bruise a large quantity of black hoar hound, as much hedge mustard, and half as much fresh valerian root. Boil them in a small quantity of water, and press out the juice very hard ; give a quarter of a pint for a dose once in twelve hours. Rub the legs with hot vinegar, and drive the sheep gently about, for some motion will assist the medicine in procuring redress.



C H A P. VII.

Of Swine.

THESE creatures being the most hardy of the farmer's flock, and always under his eye, are less subject to disorders than any other ; - but there requires some skill in chusing them, and the more carefully they are managed, the better they will succeed.

If the farmer has good convenience for feeding them, the most profitable kind is the common hog, which is large

large bodied and long legged, but this requires not only the best food but the greatest care. The small low bellied hog is hardier and feeds on any thing; it produces a great many young, and is in many cases preferable to the other. When the farmer has convenience and abundance of good food, he should chuse the first; but in all other cases the latter.

In the choice of hogs or swine for breed, take such as are of long large bodies, deep sided, and bellied, that have a short nose, thick neck and thighs, short legs, high claws, a short strong groin, and a thick chine well set with strong bristles. It is a necessary caution not to have too many sows in one yard; for their increase is so great, that for want of food, they will not only devour whatever falls in their way, but will eat each others pigs.

If the sow miss the time of going to boar that she might have done in course, give her some parched oats in a pan in her wash, or the small end of the rennet bag, which will make her quickly brim or take boar. A sow from the time she is served, to the delivery of her fare of pigs, goes about sixteen or seventeen weeks, for the most part farrowing in the seventeenth; and if they are kept clean and well fed, will bring three fares of pigs in a year.

A boar ought to be a year old before he is suffered to couple, though they are capable of serving a sow at half a year old. Nor should a sow be younger than a year old when she is suffered to take boar; and then she will breed seven years after, except she happens to have too great a number of pigs at a fare; as that is, so will she be fruitful a longer time.

Notwithstanding a sow will bring three farrows of pigs in a year, yet it will not be necessary or convenient to suffer them at every breeming to take boar; because if they bring a great number of pigs three farrowings in a year will weaken them too much: and consequently the pigs themselves would be weaker, and require a greater share of nourishment to bring them forward than

than others that are strong at their first farrowing, or shall then have the benefit of being suckled by a dam in full strength.

Though a sow may be with pig at the first breeming as is generally the case, yet it will be most prudent to suffer her to keep company with the boar for some time afterwards, to prevent the casting of her pigs before the time. She must likewise be carefully kept from the insults of dogs, or from being too much hurried, for these sometimes have caused them to slip their pigs after three months pregnancy.

Some young sows at their first farrowing are subject to eat their pigs, and therefore ought to be watched carefully when they are near their time. The best method to prevent this, is to feed her well for two or three days before she farrows; but if this be not done, then as soon as she has farrowed, wash the backs of the pigs with a sponge dipped in an infusion of aloes and water warmed and this will prevent her from devouring them.

It is the opinion of some farmers, that the best bearing time is from November to the end of March or the beginning of April, so that there will be pigs farrowed at the best seasons, either for killing as for sucking pigs, or for stock pigs, that is, those to be turned into the stubbles after harvest to be reared.

The most proper time for killing sucking pigs, and when they are first accounted wholesome, is about three weeks old, and the others that remain for breed will soon begin to follow the sow, and shift for themselves.

As for the pigs you design to rear, after you have picked out the best for boars and sows, the males are to be gelt, and the females spayed. The spayed gelts, as they are termed, are counted most profitable, by reason of the great quantity of fat they have upon their inwards more than other hogs. Young shoats, which are swine of about three quarters of a year old, are best for pork, and those of a year or a year and a half old, for bacon.

The most advantageous method of taking care of
swine.

swine, is to feed them in such manner that they may be best kept in a middling condition till you would have them fattened; for if you keep them too fat, it will endanger their health, and if too lean, it will make them ravenous. It is likewise adviseable, to give them such swill as you have at hand every morning and evening, to make them come home to their cots; the rest of the day let them graze and get what food they can, only when corn is upon the ground, care must be take to keep them within bounds.

Moist sedgy grounds are good for swine, the roots whereof they will eat; as also all sorts of haws, kips, flocs crabs, mast, acorns, &c. with which, if you have plenty enough to fat them, their flesh will prove much better and sweeter than if fattened in a sty. However, if they are fattened in styes, the farmer should observe to give them as much water as they will drink, and to keep them very clean, which will much forward their fattening, and mend the taste of their flesh. But if the farmer lives remote from a wood, or in case the year does not suit for acorns or mast, they must be fattened altogether with pease, if cheap, but if otherwise, with the meal of barley, rye, or offal corn, which must be mixed with water, whey or skimmed milk. Thus they will be suplied till grown fat, which will be in about a month's time; after this, a little before they are killed, they must be fed only with pease. And farther, it is requisite that every sty has a yard well paved with stone, for the hog to go out and ease himself, that he may keep his lodging the cleaner, and receive the benefit of the sweet air.

It is also necessary, when hogs are put up to fatten, that they should be kept out of the hearing of the cry or grunt of other hogs; for otherwise, upon their first confinement, notwithstanding they have great plenty of food given them, they will pine and decline in their flesh.

When you are inclined to wean the pigs, feed them now and then when the sow is from them, with the best milk that can be spared from the dairy. Let

them first have it warm, but, at the end of three weeks, if you design to rear them, give it them cold, and then you may, at a month old, either let them be fed alone, or keep company with the sow abroad.

If you are to buy hogs, and suspect their health draw your hand against the grain of the hair; and if the roots be white and clean, the hog is sound, but if they be bloody and spotted, he is sick.

With respect to the distempers that hogs are subject to, they easily shew their illness by the hanging down of their ears, their dull heavy looks, and the loss of their appetite, which they never recover till they are well again. The most common, however, as well as the most fatal disorder, is

The Meazles.

In this case, the eyes look red and inflamed, and the skin grows foul, rising in pimples, and running into scabs. It may be cured by the following method:

Put into a good warm mess of victuals, half a table spoonful of spirit of hartshorn, and two ounces of bole armoniac; keep him fasting from five o'clock in the afternoon till the next morning, then give it him, and he will eat it greedily. The same dose must be repeated every day till he is cured, which will be in four or five days; and for two days, after, he should have half the dose, to prevent a relapse.

Of the Murrain.

This disorder rises from bad food and want of water. The first sign of it is a running of the eyes, then the head swells, and the hog carries it on one side; after this he grows hot and weak, refuses his victuals, and, if not cured, will pine away till he dies.

Dissolve in a pint of ale, half an ounce of Venice Treacle, an ounce of boiled armoniac, and half a dram of salt petre: add to this four ounces of powder of grey ground liverwort. Mix it all with a good hot mess of victuals, and give it early in the morning.

morning. When the hog has ate as much as he likes take it away ; then two or three hours after set it before him again, and give him no other food. This will bring him to be much better in a few days ; and after that, a smaller quantity of medicine must be mixed with his victuals, but he must have some of it in all he eats till perfectly recovered.

Of the Pox in Hogs.

This is a name idly given to a disorder in hogs, which is really no other than a more violent degree of the meazles beforementioned. The skin is not covered with pimples, but large blotches, and they break and become running sores, which are afterwards covered with dry hard scales.

Give the hog three quarters of an ounce of mithridate in a warm mess at night ; and repeat it three times. Set over the fire in a pipkin a pound of hogs lard, and three quarters of a pound of tar. When they are melted & well mixed, take them from the fire, & stir in half a pound of the powder of roll of brimstone. Wash the hog very clean with strong soap suds, and when he is dry rub this ointment over all the places where the sores are, then clean out the stye, and keep him dry and clean. Repeat this once in two days till he is well, which in all probability will be in three or four dressings.

Swelling of the Melt.

This disease is common among hogs and often fatal. The creature appears giddy, and runs always on one side, lying also on that side, and rubbing it against walls. He pines away soon after, neglects his food and shews the greatest uneasiness. To cure this,

Bruise some woody nightshade, and press out the juice ; to a pint of it, put half a pint of juice of wormwood, and a quarter of a pint of the juice of penny-royal. Put half a pint of this into a mess of victuals once every day, till he is well, which will be known by the recovery of his appetite.

Of

Of the Lethargy

Hogs that are troubled with this disorder will doze all day, and neglect their food. The best remedy is a strong vomit, and the following will always answer :

Prefs out four spoonsful of the juice of Afara-bacca leaves, and a pint of the juice of the wall pepper or yellow stone crop. Mix this with a mess of warm victuals in the morning. He will vomit, though he eats but little, and will afterwards be infinitely the better for it. The dose may be repeated at times till he is well, or, if it does not operate sufficiently, it may be strengthened with a dram of white vitriol.



C H A P. VIII.

Of Rabbits

TH E S E creatures are not only very profitable to the farmer, on account of their great increase, but likewise the little expence that attends the keeping of them. They begin to breed at three quarters of a year old, and continue breeding so fast, that it is no uncommon thing for them to have five or six litters in a year. The doe goes with young thirty days, and then kindles : after this, she must not be suffered to take buck again till the young ones are six weeks old, at which time they may be taken from her. They have usually from four to seven in a litter, and hence it is, that a small number at first will soon stock a whole warren, if left to breed without being disturbed. When the buck goes to the doe, he always beats and stamps very hard with his feet, and when he has copulated with her, he falls backwards, and lies as it were in a trance : in this state it is easy to take him, though he will soon after recover.

The male rabbits are very cruel in their disposition, and will frequently kill the young ones, if they can get at them ; but the does in the warrens prevent this,
by

by covering their stocks or nests with gravel or earth, which they close so artificially up with the hinder part of their bodies, that it is difficult to find them out. They never suckle the young ones at any other time than early in the morning, and late at night, and always, for eight or ten days, close up the hole at the mouth of the nest in a careful manner when they go out. After this they begin to leave a small opening, which they, increase by degrees, till at length, when they are about three weeks old, the mouth of the hole is left intirely open that they may go, for they are at that time big enough to take care of themselves, and to feed on grafs.

Those who keep tame rabbits for profit breed them in hutches, but these must be kept very neat and clean, otherwise they will be always subject to diseases. Care must likewise be taken to keep the bucks and does separate from each other. The general computation of males and females is, that one buck rabbit will serve for nine does. Some allow ten to one buck ; but those who go beyond this will always suffer for it in their breed.

The principal consideration in chusing of tame rabbits is, to pick the largest and fairest ; but the breeder should remember that the skins of the silver-haired ones sell better than any other. The food of the tame rabbits may be colewort and cabbage leaves, carrots, parsnips, apple rinds, green corn, and vetches, in the time of the year ; also vine leaves, grafs, fruit, oats, and oatmeal, milk-thistles, sow-thistles, and the like ; but with these moist foods they must always have a proportionable quantity of the dry foods, as hay, bread, oats, bran, &c. otherwise they will grow pot-bellied and die. In Winter they will eat hay, oats, and chaff, and these may be given them three times a day ; but when they eat green things, it must be observed that they are not to have any drink, because it will throw them into a dropfy ; and at other times when they have, care must be taken that it be always fresh.

When any green herbs or grafs are cut for their food,
the

the farmer must observe that there is no hemlock among it ; for though they will eat it greedily among other things when offered to them, yet it is immediate poison.

The common method of catching wild rabbits is by nets, called purse nets and ferrets. The ferret is sent into a hole to force them out, and the purse net being spread over the hole, takes them as they come out. The ferret's mouth must be muffled, and then the rabbit will receive no harm. For the more certain taking of them it may not be improper to pitch up a hay-net or two at a small distance from the burrows that are intended to be hunted, as by this means very few of them will escape.

Some who have not ferrets smoke the rabbits out of their holes with burning brimstone and orpiment. This method will certainly bring them into the nets ; but then it is very troublesome and offensive, besides being very detrimental to the place, as no rabbit will, for a long time after, come near the burrows which have been thus fumed with these stinking ingredients.

Others take them either by small cur dogs, or by spaniels bred up to the sport ; and the place of hunting those that straggle from their burrows is under close hedges or bushes, or among cornfields and fresh pastures.

The principal infirmities to which rabbits are subject consist, of two, the first of which is the rot. This is occasioned by giving them too large a quantity of greens, or from their being fresh gathered, with the dew or rain hanging in drops upon them. The greens should, therefore, be always given dry, and a sufficient quantity of hay, or other dry food, intermixed with them, to take up the abundant moisture of their juices. The shortest and sweetest hay is the best, and if early applied after the discovery of the disease, will prevent any fatal consequences.

The other general disease of those creatures is a sort of madness. This is known by their wallowing and tumbling about with their heels upwards, and leaping in a strange manner. It is supposed to arise from the
rankness

rankness of their food ; and the general cure is the keeping them low, and giving them the prickly herb, called tare-thistle, to eat.

Of Fowls.

THE farmer's stock cannot be said to be compleat without the assistance of these useful creatures, the advantages of which must appear to every one who keeps them. And so equal is the distribution of their bounties, and so trifling the expence attending them, that the poorest villager may reap the same benefit from their products as the most substantial farmer.

As it would be unnecessary in this place to give a particular description of the various sorts of cocks and hens we shall only advise the purchaser to chuse those that are the best breeders and the best layers ; the oldest being always reckoned the most proper for sitting, and the youngest for laying. Care, however, must be taken that they are not kept too fat, as in this case no sort will be good for either.

The best age to set a hen for chickens is from two years old to five, and the best month to set them is February ; though any month between that and Michaelmas is good. A hen sits twenty days, whereas geese, ducks and turkies sit thirty. Observe to let them have constantly meat and drink near them while they sit, that they may not straggle from their nests, and the eggs thereby lose their nourishment.

It is said that if fowls are fed with buck or French wheat, or with hemp-feed, they will lay more eggs than ordinary ; and buck wheat, either the whole or ground, and made into paste, which is best, is a grain that will fat fowls or hogs very speedily ; but the most common food for this purpose is barley meal, moistened with milk or water. The nature of the hen should be as nearly equal as possible with that of the cock ; she should be working, vigilant and laborious, both for herself and her chickens ; in size the biggest and largest are the best, every proportion answerable to those of the

the cock, only instead of a comb, she should have upon her crown a high tuft of feathers. She should have many and strong claws ; but it will be better if she has no hinder claws, because they often break the eggs ; and besides, such as have do sometimes prove unnatural.

Hens that crow are neither good breeders nor good layers.

In chusing of hens for hatching the oldest are the best, because they are more constant, and will sit out their time ; but if you chuse for laying, take the youngest, because they are lusty, and prone, to generation ; but do not chuse a fat hen for either of these purposes, for if she be set she will forsake her nest ; the eggs she lays will be without shells, and she will grow slothful and indolent.

The best eggs are those that are laid when the hens are a year and a half, or two years old ; at which time, if you would have large eggs, give them plenty of victuals, and sometimes oats, with fenagreek, to heat them : for those that are fat generally lay but small ones. Mix some chalk with their food, or mix some brick with their bran, moistened with a little water, and give them their fill of half boiled barley, with vetch and millet.

There are some hens that have the ill faculty of eating their eggs ; to prevent which, take out the white of an egg, and put moist plaister round about the yolk till it grows hard ; and when the hen attempts to eat it, and finds she cannot do it, she will soon give over breaking her eggs. You may likewise pour a clear plaister upon the yolk of an egg, and let it harden, so that it may serve for a shell, and put it into a nest : or you may shape an egg of plaister, or chalk, and let that be for a nest egg.

Hens that have spurs often break their eggs, and instead of hatching them, will sometimes eat them : these must be scoured, as well as those that scratch and crow like a cock ; first by plucking the great quills out of their wings, and by feeding them with millet, barley, and paste, cut into small pieces, pounded acrons,
and

and bran, with pottage, or crumbs of wheat bread steeped in water.

They must be kept in a close place, and at rest, and their feathers must be pulled from their heads, thighs, and rumps. If a hen be too fat, or has a looseness, she will lay wind eggs.

The best time to set a hen, that the chickens may be large and most kindly, is in February, in the increase of the moon, that she may disclose the chickens in the increase of the next new moon ; for one brood of this month is worth three of any other. Hens, however, may set from March to October, and have good chickens, but not after that time ; for the Winter is a great enemy to their breeding.

A hen sits just twenty-one days ; and if you set her upon the eggs of ducks, geese or turkies, you must set them nine days before you put her own eggs to her, of which a hen will cover nineteen : whatever may be the number you set her with, be careful that there is always an odd one.

When you put the eggs under her it will be necessary to make some particular mark on one side of them, and to observe whether she turns, them from that to the other : if she does not, then take an opportunity, when she is from them, to turn them yourself. Be careful that the eggs you set her with be new, which may be known by their being heavy, full and clear ; neither should you choose the largest, for they have often two yolks ; and though some are of opinion that such will produce two chickens, it commonly proves a mistake ; but if they do, the production is generally abortive.

If a hen is disturbed from her nest she will entirely forsake it ; and you must be careful to place her meat and water near her during the time she is sitting, that her eggs may not cool while she is gone to seek for food. If she be absent from her nest, stir up the straw, make it soft and handsome, and lay the eggs in the same order you found them,

It may not be improper to perfume her nest with rosemary or brimstone ; and you must take care that

the cock does not come at the eggs, and set upon them; for he will not only endanger the breaking of them, but will cause the hen to dislike her nest.

Your hen-house must be large and spacious, with a high roof and strong walls, to keep out thieves and vermin: let there be windows on the east side that they may enjoy the benefit of the rising sun, and these must be strongly lathed and close shut; upwards, and round about the insides of the walls upon the ground, should be made large pens of three foot high for geese, ducks and large fowls to set in, and near unto the eavings of the house should be long perches, reaching from one side to the other, on which should be set cocks, hens, capons and turkies. At another side of the house, at the darkest part, over the ground pens six hampers full of straw for nests, in which hens should lay their eggs but when they sit to hatch chickens, then let them sit on the ground.

There must be pins stuck in the walls that the poultry may climb to their perches with the greater ease.

The floor of the hen-house must not be paved, but made of earth smooth and easy. Let the smaller fowl have a hole made at one end of the house to go in and come out when they please, otherwise they will seek out roost in other places; but for larger fowl, you may open the door every night and morning.

The most advantageous situation for a hen house is near some kitchen, brew-house, bake-house, or kiln, where it may have the air of the fire, and be perfumed with smoak, which to pullets is not only wholesome, but agreeable.

When your chickens are hatched, if any be weaker than the rest, wrap them in wool, and let them receive the benefit of the fire; it will also be necessary to perfume them with rosemary. The first hatched chickens may be kept in a sieve till the rest are disclosed, for they will not eat for two days; some shells being harder than others, they will require so much more time in opening; but unless the chickens are weak, or the hen unkind, it will not be improper to let them
continue

continue under her, as they will thereby receive the greater nourishment.

Two days after they are hatched, give them very small oatmeal, some dry, and some steeped in milk, or else crumbs of fine white bread; and when they have gained strength, you may give them curds, cheese parings, white bread, crusts soaked in drink or milk, barley meal or wheaten bread scalded, or the like soft meat that is small and will be easily digested.

They must be kept in the house a fortnight, and not suffered to go abroad with the hen to worm. Green chives chopped among their meat is very good, and will preserve them from the rye or other diseases in the head. Be careful to let them have clean water, for if it is dirty, it will be apt to give them the pip. Neither must you let them feed upon tares, darnel or cockle, for these are very dangerous to young ones, nor let them go into gardens till they are six weeks old.

Those chickens you intend to cram, must be cooped up when the dam has forsaken them, and cram them with dough made of wheaten meal and milk, which dip in the latter, and thrust down their throats; but be careful they are not too big as it will otherwise choke them.

If you want to fatten chickens, you must put them into coops, and feed them with barley meal. Put likewise a small quantity of brick dust into their water; for that will not only give them an appetite to their meat, but will fatten them very soon. For in this case, it must be considered, that all fowls and other birds have two stomachs the one is their crop, that softens their food, and the other the gizzard, that macerates it. In the last are generally found small stones and sharp sand, which help to do that office, and without them, or something of that kind, a fowl will be wanting of its appetite; for the gizzard cannot macerate or grind the food fast enough to discharge it from the crop without such sand or stones, and therefore, in this case, the brick dust is very useful.

The diseases incident to hens are as follow :

Setting.

Setting hens are sometimes troubled with lice and vermin ; for the cure of which, pound burnt cummin and staphisagar, of each equal quantities, mix it with wine, and rub them with it, or wash them with a decoction of wild lupines.

If hens are troubled with a looseness, mix a handful of barley meal, and as much wax, in some wine ; make it into a mass, and give it them in the morning before they have any other meat, or else let them drink a decoction of quinces or apples.

It sometimes happens that hens by laying too many eggs, or sitting too long, exhaust their strength, and languish. To remedy this take the white of an egg, and roast it till it appears burnt ; mix this with an equal quantity of dried raisins, also burnt, and give it them the first thing in the morning.



C H A P. X.

Of Ducks.

THERE are two sorts of these birds, viz. the tame and the wild. The tame ducks are extremely useful to the farmer's yard, in that they require little expense or attendance, their food principally consisting of lost corn, worms, snails, &c. At one time in the year they lay a great number of eggs, especially that sort that turns up the bill more than the common kind. Little attendance is required while they sit, except to let them have some barley or oval corn and water near them, that they may not hurt their eggs by straggling from their nest.

It is generally esteemed more advantageous to set a hen upon the duck eggs, than any kind of duck whatever, because the latter will lead them, when hatched, too soon to the water, where, if the weather be cold, in

in all probability some of them will be lost. The number of eggs to set a duck on is about thirteen. The hen will cover as many of these as of her own, and will bring them up as well.

If the weather be tolerably good at the time the ducklings are hatched, they will require very little attendance; but if they happen to be produced in a wet season, it will be necessary to take them under cover, especially on nights; for tho' the duck naturally loves water, it requires the assistance of its feathers, and till grown is easily hurt by the wet.

The method of fattening ducks is exactly the same let their age be what it will. They must be put into a retired place, and kept in a pen, where they must have plenty of corn and water. Any sort of corn will do, and with this single direction they will fatten themselves extremely well in a fortnight or three weeks time.

To preserve wild ducks you must wall in a piece of ground wherein is some little pond or spring, covering the top of it all over with a net: the pond must be set with tufts of ozers, and have many secret holes and creeks, that they may be the better inured to their habitation. The wild duck, when she lays, steals away from the drake, and hides her nest, for otherwise he will suck the eggs. After she has hatched she is very careful to rear her young, and needs no attendance more than meat, which must be given twice a day, as scalded bran, oats, or vetchets. Teals, widgeons, shell-drakes, or green plovers, may be likewise ordered in the same manner.



C H A P. XL.

Of Geese.

THESE are no less advantagious to the husbandman than the former, as they require little expence in keeping, and are profitable for food, their feathers, and their grease. They will live upon commons, or

any sort of pasture ; and need little care and attendance, except the having plenty of water.

In chusing of geese the largest are reckoned the best ; but there is a sort of Spanish geese that are much better layers and breeders than the English, especially if their eggs are hatched under an English goose. It must be observed that the colour of them should be white or grey, for pyed are not so profitable, and the darker coloured are still worse.

It may easily be known when geese will lay by their carrying of straw in their mouths ; and when they will sit by their continuing on their nests after they have laid. The time for laying is the Spring, and the earlier the better, because of their price, and of their having a second brood. A goose sits thirty days ; but if the weather be fair and warm, she will hatch three or four days sooner. During the time of her sitting you must be careful, when she rises from her nest, to give her meat, as sheg oats, and bran scalded, and let her have the opportunity of bathing in water.

When the goslings are hatched you must keep them in the house ten or twelve days, and feed them with curds, barley-meal. bran, &c. After they have got strength, let them go abroad for three or four hours in a day, and take them in again, till they are big enough to defend themselves from vermin.

One gander will serve five geese.

In order to fatten green geese, you must shut them up when they are about a month old, and they will be fat in about a month more. Be sure to let them have always by them in a small rack some fine hay, which will much hasten their fattening. But for fattening of older geese, it is commonly done when they are about six months old, in or after harvest, when they have been in the stubble fields, from which food some kill them ; but those who are inclined to have them very fat, shut them up for a fortnight or three weeks, and feed them with oats, splitted beans, barley meal, or ground malt mixed with milk.

It may be observed that all water-fowl, while fatten-
ing

ing, usually sit with their bills on their rumps, where they suck cut most of their moisture and fatness, at a small bunch of feather which you will find standing upright on their rumps, and always moist ; but if you cut this close away, it will make them fat in less time and with less meat than otherwise.

Geese will likewise feed on, and fatten well with carrots cut small : or if you give them rye before or about Midsummer, (which is commonly their sickly time) it will strengthen them, and keep them in health.

It is customary in some countries to shear the geese for their feathers, and others pull them twice in the year ; but this latter way is more injurious to them, and therefore it is better to stay till their moulting time, or till they are killed for use.



C H A P. XII.

Of Turkeys.

THESE birds are naturally inclined to ramble, and will therefore thrive best in open countries, where there is not much shelter to harbor vermin. They are of a very tender constitution, and while young must be carefully watched and kept warm ; for the hens are so negligent, that while they have one to follow them, they will never take any care of the rest. Some people, where they have the convenience of a small covert near the house, let them take their liberty, and seek their own nests ; but it is only in particular places that they do well with such management.

Turkeys are great feeders of corn, and if kept on it will devour a great quantity ; but if left to their liberty when grown up, they will get their own living, by feeding on herbs, seeds, &c. as they are very apt to straggle, they will often lay their eggs in secret places, and

and therefore the common sort of them must be often watched, and compelled to lay at home. They begin to lay in March, and will sit in April; but they should not be suffered to sit on more than eleven or thirteen eggs at most.

When they have hatched their brood (which will be in between twenty-five and thirty days) you must be particularly careful to keep the young ones warm; for the least cold will kill them. They must be fed either with curds, or green fresh cheese cut in small pieces; and let their drink be new milk, or milk and water. Some give them oatmeal and milk boiled thick together, into which they put wormwood chopped small, and sometimes eggs boiled hard, and cut in little pieces. They must be fed often, for the hen will not take much care of them; and when they have got some strength, feed them abroad in a close walled place, where they cannot stray; you must not let them out till the dew is off the grass, taking care to have them in again before night, because the dew is very prejudicial to their health.

If you fatten turkies give them sodden barley or sodden oats for the first fortnight, and for another fortnight cram them as you do capons. They are only to be crammed in a morning, which must be given to them warm, and let out all day, being sometimes fed with corn while out; because, as they are fatten birds, they will otherwise be apt not to fatten so kindly.

Turkies eggs are not only reckoned very wholesome in general, but will likewise greatly contribute to the restoring of decayed constitutions.

G. H. A. P.



C H A P. XIII.

Of Pigeons.

THE profits arising from these birds are not only very considerable, but very certain; for they breed fast, and there is a constant demand for them. If the farmer is not already provided, the best time to furnish himself is in May or August; because at these times there are a great number of young pigeons, which may be purchased at very little expence.

Pigeons are of various sorts, such as carriers, pouters, runts, tumblers, &c. but the two principal are the tame and dovecote. The former of these is no less valued for its beauty than the largeness of its body; but the latter, which is the kind usually kept in dovecotes, and thence receives its name, is smaller, and less beautiful.

If the farmer's situation lays near a large town, it may be worth his while to keep some of the large tame kind; because, although they cannot be fed but at a great expence, yet their young come so early, and are so fat and fine, that they command a price which very well returns it: but in the country the common pigeon is the proper kind; for though the price they fetch is not near so great, their number, and small expence of keeping, makes ample amends.

Tame pigeons generally produce but two young ones at a brood; but they make some amends for the smallness of their number, by the frequency of their hatching; for if well fed, and looked after, they will have young ones twelve or thirteen times in the year. In chusing of them the beauty is generally most regarded; but care should be likewise taken to pair them well, because in this case they will be more firmly attached to each other.

The farmer must be careful to keep them clean, for
they

they dislike dirt, though they make a great deal of it. Their best food is tares, or white pease, and they should have besides this some gravel and clean water scattered about at all times. A great deal of care must be taken to preserve them from vermin, and their nests from the starlings and other birds, as the latter will suck their eggs, and the former entirely destroy them.

The common or dove-cote pigeon is a sort that not only demands, but deserves the utmost attention of the husbandman; and of this breed is properly that which is called the common blue pigeon. This has the advantage of many other kinds, in that it is hardier, and will live in the most severe weather. But if the breed should be too small for the farmer's purpose, he may mend it by putting in a few tame pigeons of the most common kind, and the least conspicuous in their colours, that the rest may the better take to them from their being more like themselves: this, however, must be done with caution; for though the size of a pigeon's body is a plain advantage, yet it is well known in the kinds in general, that the smallest bodies will produce the greatest number of young.

The ringdove has been by some introduced into the dove-cote, by setting the eggs under a common pigeon; they will in this case live, and take their chance among the others; and they have two advantages over them, the one in their largeness, and the other in their hardiness, for they will live on any food, and endure the most severe weather.

Pigeons feed to the greatest advantage in those countries, where the husbandman sows large quantities of horse beans and grey pease. These sorts of pulse are sown earlier than other kinds of grain; and their early feeding upon them makes them healthful and strong at those times, and is an occasion of their breeding earlier than they do elsewhere, which is a consideration of little importance.

It is a necessary requisite to the farmer to preserve a proper proportion of the sexes among his pigeons; for there is nothing so hurtful as the having too many
cocks.

cocks, especially if they keep the larger or tame kind. It is his business to keep his dovecote well stocked; and most people who keep them make their consciences easy about deluding away those belonging to their neighbours; but this abundance of cocks thins the dovecote, for they grow quarrelsome, and will beat others away; till by degrees a very thriving dovecote shall be, by this single mistake, reduced to a poor condition.

The cheapest and most easy way of making a dovecote is to build the walls with clay mixed with straw; they may be made four feet or more in thickness, and while they are wet it is easy to cut holes in them with a chissel or other instrument. But of whatever materials the cote be erected, it should be white-washed frequently on the outside. The pigeon, as has been said already, is a cleanly bird: it loves the appearance of neatness; and beside, the white colour renders the building more conspicuous.

With respect to the food of pigeons, exclusive of the pease and tares already mentioned, barley is very proper, heartening them very much, and making them lay; and for the same purpose buck-wheat also is an excellent as well as cheap food. In general however, the common pigeons in a dovecote take care of themselves, and need no food from their keeper. There are only two seasons at which it is necessary or proper to feed them. One of these times is the depth of Winter when the ground is covered with snow, or hardened so by frost, that little is to be got; and the other is the middle or latter end of June. The reason of feeding them in the first of these seasons is obvious; the latter, when the farmers speak of this fowl, they call benting-time. There is a grass called bent grass, the seed of which is ripe about this time, and is the only food of that kind the pigeons can easily get at, the pease not being yet ripe. This is a very poor food, and the pigeons at this time have generally many young broods; wherefore the farmer will always find his account in giving them food at this season as well

as the other. This, however, continues but a short time, and the other is only necessary at the severest days of Winter ; so that the pigeon is, at the most, but a small expence, and that for a very short time.

Pigeons are very fond of salt, and therefore the breeder of them should have a large heap of clay laid near the dovecote, and let the brine of the family be continually beaten among it ; or he may make a kind of mortar with lime, sand, clay and salt, which they will peck with great satisfaction. When it is thus made-on purpose for them, it is best to make it thin, and keep it so, by often mixing brine with it.

There are some farmers who lay what is called a salt cote near the dovecote. This is a large lump of salt made for that purpose at the salt pans, and is the method generally taken where there are works in the neighbourhood ; but the way of using salt in a mixture with clay is far preferable.

The best composition, however, for this purpose, and which has been found so by experience, is the following. A heap of loam is to be laid near the dovecote, and beat up to a kind of pap with brine or water ; into this must be thrown a large quantity of bay salt and a little salt petre, to which is added about three quarters of a peck of coarse sand. When brine is used to beat up the loam, less salt is to be used ; and when water, there must be the more of it in proportion. And in the same manner, if the loam contain a great quantity of sand, the less is to be added to it : and if it contain less, the more is to be given. Where loam is not to be had, clay will do, but then a much larger quantity of sand must be put in ; and the best sand for this purpose is large coarse sea sand, which is already impregnated with salt water.

It is very remarkable that the pigeon should love salt in this manner ; and its fondness for salt petre, which is very great, is not so well known, though this might have been discovered, by observing the likeness this bird has to the mortar in old walls, which contains a salt very nearly allied to the common salt petre.

the

The use of salt is of much more advantage to pigeons than merely the pleasing of them, for nothing will recover them so readily from sickness ; a mixture of lay salt and cumming seed being with them an universal remedy for all diseases.

Various methods have been used by the country people to make the pigeons love their habitation. Some have advised the use of assafoetida, and others of cummin seed, for this purpose ; but the best method of all others is to keep up constantly such a heap of salted loam as before described ; for it is what they love, and they will therefore stay where they can have it in plenty. By this means, with the addition of keeping the dovecote neat and clean, and not suffering them to be disturbed in it, the farmer will be sure to keep the stock in good number, and too likely to increase it at the expence of his neighbours.

Besides the advantages already mentioned arising from these birds, there is one other which is peculiar to themselves, that is, their dung, the value of which not only surpasses the ordure of other fowl, but even of all creatures whatever ; one load of it being worth ten of other dung. It is usually sown on wheat or barley that lies at a great distance where other manure cannot be conveniently carried, forty bushels of which will serve for an acre of land. It is an excellent soil for cold moist grounds, being sown by hand after the corn, and in the same manner, and then harrowed in with the seed.

Pigeons are sometimes apt to be scabby on the backs and breasts, which distemper will kill the young ones, and make the old ones so faint that they cannot take their flights to procure meat. In order to cure this distemper, take a quatern of bay salt, and as much common salt, a pound of fenel seed, a pound of dill seed, as much cummin seed, and an ounce or two of assafoetida ; mix all these together with a little wheat flour, and some fine worked clay ; when it is well beat together, put it into two pots and bake them in an oven ; and when they are cold, lay them longways on the stand

or table in the dove-house, and the pigeons by pecking of it will be effectually cured.



C H A P. XIV.

Of Bees.

THE farmer's stock cannot be said to be thoroughly compleat without the assistance of these industrious insects, who are no less to be valued for the profits of their labour, than the trifling expence and trouble attendant in keeping them.

Your apiary or bee-garden should be situated as near as possible to the house, that you may the better look after them at the time of their swarming. It must be securely fenced from all sorts of cattle, especially hogs, and from all sorts of fowl, whose dung is very prejudicial to their health. They must be well defended from high winds on every side, with such fences as will admit the heat of the sun; but they should be sheltered with a brick wall that is solid, in order to keep the wind from coming through, as well as over it; that place being best for them which is most exposed to the south, and where they may have the best opportunity of settling when they return to their habitation. You should also plant several trees and shrubs at a small distance from home, that they may not want a resting place at the time of their swarming.

When you have fitted the place, the next consideration is to provide seats for the hives, which must be placed a little on the slope, that the rain may neither run into the hive, nor lay about the entrance.

You should not set any hives on a bench, because in Winter it may occasion the bees to fight, by going into each others houses, which they sometimes mistake for their own; and therefore some esteem single stools best, which are to be set at about two feet distance, and supported

ported with four legs, about twelve or fourteen inches from the ground. They should not be above half an inch or an inch bigger than the hive, except only before, where there ought to be the space of three or four inches, that the bees may have room enough to light upon it.

The best stools are of wood ; those made with stone being too cold in Winter and too hot in Summer. They should be placed towards the south, or rather a point or two to the west, that the hive may in some degree break the east wind from the door, and stand in straight rows from east to west.

Hives are made various ways in the different parts of England, but the warmest and best are those made with straw, the bigness of which should be of between five and seven gallons, of a round form, rather broad than high ; but you ought to have of each size, that you may suit your swarms to them according as they are bigger or lesser ; and where you design to multiply your stock, make use of small hives, and of the larger where you desire a great deal of honey.

When your hives are thus made, you must dress them after the following manner ; take off all the staring straws, twigs and jags that are offensive in the hive, and make them as smooth as possible. If you need but few hives, you may prune them with a knife ; if many, singe and rub them with a piece of brimstone.

Having pruned your hive, put in your spleets three or four of them, as the largeness of the hive shall require : the upper ends whereof set together at the top of the hive, and the low fastened about a handful above the skirt. Besides these spleets the hive should have four others driven up into the skirts to keep it from sinking when it is loaded ; two of which are the door-posts, and the other two the hind posts.

A little before swarming-time rub the hives with sweet herbs, as thyme, balm, savory, marjoram, fennel, hyssop, bean tops, &c. and when the warm it settled, take a branch of the tree whereon they pitch, and wipe the hive clean with it, and wet the inside of the hive with

honey, mead, salt and water, small beer, or honey and milk.

Your hives must be kept close for defence of your bees, first, from the cold by mixing of cow-dung with lime or ashes, and with sand, with which you must stop up the edges of the hive round, and against Winter put a wicket of a small piece of wood, in which are three or four notches cut just big enough for the bees to go in and out at, that they may not be destroyed by vermin.

It will be good for swarms if the Spring be mild, calm and showering; but if it proves a cold, dry, windy Spring, then there will be but few swarms, and those also backward.

If the spring be early you must begin to look after them about the middle of May, at which time you must observe what you can of the usual signs that precede their swarming, that you may be the more watchful over those that require it.

When the hives are full they will cast out their drones, although they be not quite grown, and the bees will hover about the doors. In cold evenings and mornings there will be a moisture or sweat upon the stool, and they will continually be running up and down hastily, and lie out in sultry evenings and mornings, and go in again when the air is clear and mild. They delight to rise in warm and calm weather; but especially in a hot gleam, after a shower or gloomy cloud hath sent them home together. Sometimes they gather together without at the door, not only upon the stool, but the hive also; where when you see them begin to hang in swarming-time, and not before, you may be sure, if the weather continues, they will presently rise.

If the bees lie forth continually under the stool, or behind the hives, especially towards the middle of June, it is a sign or cause of not swarming: for when they have once taken to lie forth, the hive will always seem empty, as tho' they wanted company, and they will then have no inclination to swarm.

Stormy

Stormy and windy weather also will not suffer them to swarm, when they are ready, and that makes them lie out ; and the longer they lie out, the more unwilling they are.

In order to make them swarm, some keep the hives as cool as may be, by watering and shadowing both them and the place where they stand, and then enlarging of the door to give them air, they move the cluster gently with their brush and drive them in. But if they still lie out and swarm not, then the next calm warm day about noon, while the sun shineth, put in the better part with your brush, and the rest gently sweep away from the stool, not suffering them to cluster again. These rising in the calm and heat of the sun, by their noise, as though they were swarming, will make the others come forth, and probably produce the wished for effect.

Various other methods have been attempted to cause them to swarm, as by placing a large pewter-platter under the clusters of bees as they hang out in the heat of the sun, so that it may strongly reflect the heat upon them, and thereby provoke them to swarm. But if neither of these methods should succeed, and they lie forth still, then rear the hive enough to let them in, and cloom up the skirts all but the door.

If this does not answer there is no method that can.

The signs of after-swarms are more certain. When the prime swarm is gone, about the eighth or tenth evening after, when another brood is ready, and again hath over-filled the hive, in the morning before they swarm they will come down near the stool, and there they call one another, and at the time of swarming they descend to the stool, where answering each other with thick and shrill notes, the multitude come forth in great haste. If the prime swarm be broken, the second will both cast and swarm the sooner ; it may be the next day, and after that a third, and sometimes a fourth, but all usually within a fortnight.

It is a general custom, when the swarm is risen, to

H 3

make

make a noise with a pan, kettle, mortar, &c. but some reckon it an insignificant ceremony, and others esteem it prejudicial.

After they have chosen a resting place, you will quickly see them knit together in a cluster; when they are fully settled, and the cluster hath been some time at the biggest, then hive them. And having in store several hives of different sizes, make choice of one that the bees may go near to fill it that year, and let the hive be rubbed with sweet herbs as before mentioned.

The person who hives them should wash his hands and face with beer, or being otherwise defended, if the bees hang upon a bough, shake them into the hive, and set the same on a mantle or cloth on the ground; or, if the bough be small, you may cut it off, and lay it on the mantle or cloth, and set the hive over it. If they light near the ground, lay your cloth under them, and shake them down, and place the hive over them. Those that gather together without the hive wipe gently with your brush towards it; and if they take to any other place than the hive wipe them off, and rub the part with may-weeds, nettle, wormwood, &c.

Sometimes the swarms will separate, in which case, if they light in sight of each other, let alone the greater, and disturb the lesser part, and they will fly to their fellows, but if not in sight, hive them both in two separate hives, and bring them together, shaking the bees out of one hive on the mantle whereon the other hive stands, and place the other full hive on them, and they will all join together.

If your swarm should happen to come late after the middle of June, and that they are small, under the quantity of a peck, then put two or three of them together, whether they rise the same day, in divers: for by this uniting they will labour carefully, and gather great store of honey.

The method of uniting them is thus: when it grows dusk in the evening, having spread a mantle on the ground near unto the stool, where this united swarm stands, set a pair of rests, for two supporters for the
hive

hive ; knock down the hive out of which you intend to remove your bees upon the rest ; then lift up the hive a little, and clapping it between your hands to get out the bees, set the stock to the swarm to which you would add them, upon the rests or supporters over them, and they will soon after ascend into the hive ; what remains in the empty hive, by clapping it, will hasten after their companions.

Those who have the principal management of bees should be careful to defend themselves against the venom of their stings, the surest way of doing which is to have a net knit with small meshes that a bee cannot get through, and of fine thread or silk large enough to come over your hat, and to lie down to the collar of your doublet, through which you may clearly see what you do without any danger. But if you should happen to be caught, pull out the sting as soon as you can, and take a piece of iron and heat it in the fire ; or for want of that take a live coal, and hold it as near and as long to the place as you can possibly endure it ; after which anoint it with some honey or mithridate, and you will be effectually cured.

When a swarm has entered its hive, they immediately (if the weather will permit) gather wax and build combs ; so that in a few days time there will be complete combs. They lie so thick about them, that it is impossible one quarter of them can be employed at once, until the combs are brought to a considerable length, and then a great part of them may be employed in filling them, and the rest in finishing their cells.

Towards the end of Summer, their number begins to lessen ; for in their prosperity at swarming-time, and shortly after, they are far more in number than in the Autumn or Winter, as you may easily discern between the quantity and number of a swarm, and those you kill when you take them ; for the bees of the last year's breed do now by degrees waste and perish by their extraordinary labour, their wings decay and fail them ; so that a year with some advantage, is the usual age of

a bee, add the young only of the last Spring survive and preserve the kind till the next.

The most proper time to remove an old flock of bees is a little before or after Michaelmas ; or if you have missed that time, then about the end of February or beginning of March, before they go much abroad, lest it prevent their swarming. The best time to do this is in the evening, next after hiving ; and the method is thus. Take a board about the breadth of the bottom of the hive you intend to remove, and in the evening, or two or three evenings before, lift it up, and brush the bees that are on the stool forward, and let the board be a little supported by two ledges, to prevent the death of the bees on the stool. On this board set the stock, and so let them stand till you remove them. When you come to move them, stop up the door of the hive, and set the board whereon the hive standeth, on a hand barrow, and carry them to the place where you intend to fix them.

There is little use in feeding of bees ; first, because those that have not a profitable stock of honey to serve them over the Winter, are not fit to keep ; and then because they that are bee-masters, and have not care enough of them to keep them from spending of that stock they have in Winter-time, must not expect to reap any considerable advantage by them ? and it may be presumed will never take so much pains and care as is required in feeding of them.

However, there are some stocks of bees in the Spring time that may seem worthy of our care to preserve, viz. such as have but a small quantity of honey, and a good number of bees, by means of a cold, dry, unseasonable Spring, cannot make such timely provision as in other years they might have done, yet in all probability may prove an excellent stock, and may be worth consideration.

The best method of supplying bees with food is by small canes or troughs conveyed into their hives ; and the most proper time of feeding them is in March, when

when they begin to breed, and to set on their young, which must be daily continued till the Spring season affords them ease and provision abroad, because at that time their combs are full of young ones.

Honey is not only the best, but the most natural of all food, and will go much farther if it is mixed well with a moderate quantity of good sweet wort. Some prescribe toasts of bread sopped in strong ale, and put into the bee hive, whereof they will not leave one crumb remaining; some also advise to put into the hive dry meat, or flour of beans; others bay salt, roasted apples, &c. which are very good, especially salt; which if some were mixed with water, and always at near them, it might do well, as it is certain that bees near the sea always thrive the best.

Another proposition for the improvement of bees, is to take a handful of baum, one dram of camphire, half a draw of musk dissolved in rosemary as much yellow bees-wax as is sufficient, oil of roses as much, stamp the baum and camphire very well, and put them in the melted wax with the oil of roses, and so make it up into a mass, letting it cool before you put it in the musk, for otherways the heat will fume away most of the scent. Take of this mass so much as a hazel-nut, and leave it within the bee hive; it will greatly increase the number of the bees, and you will also find both honey and wax three time more profitable than it otherwise would have been.

Various have been the endeavour to find out some way of reaping the profit of bees without destroying them, but as these have all failed in their attempts, we shall only describe the common method, and that is, the taking of combs by killing the bees, which certainly must be the only way of ordering them, because it is impossible for them to live if you deprive them of their food; and therefore, about the latter end of August, consider with yourself what stalls you will keep, and what you will kill. The best swarms to keep, are those of one or two years standing; and those of three or four, which by reason of their swarming the last
Summer

Summer are full of bees, and are the most likely to be the best ; but those of that age which have cast hives, not being likely to continue, are to be taken, as are also poor swarms not worth the feeding, and all like stocks, and such as do not carry out their dross, and drive away the drones in good time : also those whom the robbers easily assault, are to be suspected ! and if their combs be once broken, delay not their taking ; and also all stalls of three years old, or upward, that have missed swarming two years together, especially those that have lain out the Summer before and did not cast the last Summer, for such do seldom prosper ; and therefore it is better to take them while they are good, than in a vain hope of increase to keep them till they perish. Neither is it safe to trust to any after they have stood five years and upwards, that have missed swarming two years together, unless it be some special sort of bees, which always keep themselves in heart ; such as these may be kept nine or ten years. Likewise if you have any that are very full of honey, as in some years it will so happen, even down to the stool, such stall is worth three or four, and therefore take them in their proper time.

When you have made choice of your stalls to be taken, two or three hours before sun-setting, dig a hole in the ground about nine inches deep, and almost as wide as the hive skirts, laying the small earth round about the brims ; then having a little stick slit at one end, and stripped at the other, take a brimstone match five or six inches long, and about the bigness of your little finger, and making it fast in the slit, stick it in the middle or side of the hole, so that the top of the match may stand even with the brim of the pit, or within one inch of it, and then set another by it dressed after the same manner, if the first be not sufficient. When you have fired the matches at the upper end, set over the hive, and presently shut it close at the bottom with the small earth, that none of the smoke may come forth, and the bees will be dead in a short time.

After.

After the hive is taken and housed, lay it gently on the ground upon the sides, not on the edges of the combs, and loosen the end of the splints with your finger, and the edges of the combs where they stick to the sides of the hive, with a wooden slice; take them out one after another, and having wiped off the half dead bees with a good feather, break the combs while they are warm into three pieces.

The first-produce of the combs, and which runs of itself, is called Virgin honey, as is also that which comes from the first year's swarm. This is by far the best, being more crystalline and of a finer taste than that which is squeezed out of the combs, and may therefore be kept for particular uses, or for making of the finest mead.

When the combs have done running put the honey up warm into pots by itself, and it will for two or three days work up the scum of coarse wax, dross and other stuff, which must be taken off. The other honey which is the coarser sort, must be got from the combs by pressing them, which you may likewise pot, except what you design for immediate use in making metheglin. This being done, what remains put into a hair bag, and wash in a trough or other vessel, and when the sweetness is all out, try the balls for wax; the manner of ordering which is thus: Take the wax and dross, and set it over the fire in a kettle, or other vessel that may easily contain it. and pour in so much water as will make the wax swim, that it may boil without burning, and for this reason, while it is gently boiling over the fire, stir it often; when it is thoroughly melted, take it off the fire, and presently pour it out of the kettle into a strainer of fine thin linnen, or of twisted hair, ready placed upon a screw or press, lay on the cover, and press out the liquor (as long as any wax comes) into a kettle of cold water, but first wet both the bag and the press, to keep the wax from sticking; at the first cometh most water, in the middle most wax, and at the last most dross. When the wax grows hard make it into balls, squeezing out the water with
your

your hand ; which when you have done, break all the balls into crumbs, and in a kettle or skillet set it over a gentle fire ; while it is melting, stir it and skim it with a spoon wet in cold water, and as soon as it is melted and scummed clean, take it off, and pour it into a pan or mould, besmearing the bottom and side, first with honey (the wax being as cool as it will run thro' a linnen strainer :) when you come near the bottom, pour it gently, till you see the dross come, which strain into some other thing by itself, and when it is cold, either try it again, or keep it for use.

If there is any froth remaining on the top of the pan or mould, blow it together at one side, and skim it off gently with a wet spoon. This done, set not the cake abroad where it may cool too hastily, but put it in a warm place not far from the fire, and if it be a large cake, cover it warm, to keep the top from cooling till the inward heat be allayed, and in this manner let it stand, not moving it till the cake be cold. If it should stick, warm the vessel or mould a little, and it will slip out easy.

Good wax is very valuable, the properties of which are, that it is yellow, odoriferous or sweet, fat, fast or close, light, pure, being void of any other matter. It will always produce a good price, especially English wax, which is much better than foreign, and generally sells for about five or six Pounds per hundred, it being of an extraordinary use both in surgery and physic, beside what is made of it for lights, the cleanness and sweetness of which surpasses that of any other kind whatever. In physic or surgery it is reckoned a mean between hot and cold, between dry and moist, being the ground of all searcloths and salves: it mollifies the sinews, and ripens and resolveth ulcers ; the quantity of a pea being swallowed down by nurses, dissolveth the milk curdled in the breast.

Its oil is of excellent virtue to cure wounds, be they ever so large or deep (being before stitched up) in ten or twelve days at the most, and healeth small wounds in three or four days, by only anointing the
wound

wound therewith. It is likewise good for inward diseases ; if you give one drachm at a time in white wine, it will provoke urine, help stiches and pains in the loins, the cold gout, and all other complaints which arise from a cold.

The honey is little inferior, either in its benefit or usefulness, to the wax ; it is of subtle parts, and therefore pierceth as oil, and easily passes the parts of the body ; it hath a power to cleanse, and therefore it openeth obstructions, and cleareth the breast and lungs of those humours that fall from the head ; it looseneth the belly, purges the foulness of the body, and provoketh urine ; it nourisheth very much, and breedeth good blood ; it prolongeth life, and keepeth all things uncorrupted which are put into it ; and therefore physicians use it in such medicines as they intend for long preservation.

It is also an eminent ingredient in the great antidotes of treacle and mithridate, and is good against pluries, phthicks, and other diseases of the lungs. In any distemper, however, it is much better to be taken clarified than raw, it being thereby made lighter of digestion, less laxative and sharp, and much more nourishing.

Having thus described the last article which comes under the head of the farmer's stock, we shall now proceed to such other matters as equally require the care and attention of the industrious husbandman.



C H A P. XV.

Of the cultivation and management of Turneps.

THE advantages arising from turneps are so many and so great, that few crops can reasonably be
I
esteemed

esteemed before them. As they are serviceable for the changing the crop, and for the feeding of cattle, they must come frequently into use in the farmer's course of tillage, and he will be obliged to sow them upon various kinds of soil ; but that which suits them best of all is a black mellow earth, with some sand among it, or a rich fine loam. They will never succeed well in wet heavy lands ; nor will they arrive at their natural perfection in such as are light, without a degree of richness to feed them.

As this root may be raised either in the common way of sowing, or by the drill and horse-hoeing husbandry, the defect of a soil may be assisted by better culture. In good land the turnip may grow to its full perfection in the common method of culture ; but when the ground is poorer, those methods will be more advantageous which can give nourishment to the crop while growing.

Turnips will follow various crops with advantage. The sowing upon stubble land is a very good method, in which case the seed need only be harrowed in and rolled ; and unless the Winter should prove very severe, there will be an excellent feeding for the ewes and lambs late in Spring, when other food is scarce. Beans and peas are also very properly followed by turnips, and the ground after all these is in a due condition, without requiring any other preparation than plowing up and in many cases even that is unnecessary.

The seed of the turnip will bear trampling upon without damage, which has given rise to the practice of scattering it upon crops before they are cut. Being round and smooth, it is not subject to hang in the stalks of the plant, but gets to the ground, and there lies till the reapers come in, and their treading presses it into the ground ; so that by the time the crop is well off, the turnip-seed is ready to shoot, and the plants after escape better in the seed leaf thus, than any other way. The quantity of seed should be somewhat greater when they are sown this way, than any other, because some will fail ; and the ground should be tender, and free from stones. In

In chusing of the seed the farmer should principally consider the nature of the soil ; for if it be very good, the common turnips will yield him the most advantage. It will grow in fields to as much perfection as in a garden, when the ground is of this sort, and it has careful management. If the field be of an inferior sort of earth, he has choice of the Suffolk and the yellow turnip ; but the finest seed of the common kind is that brought from Germany. Whatever sort the seed be, the farmer should always get it from some person who lives at a distance, and should take care it be the seed of a crop which has grown upon a land of as different a kind as possible from that where he is to sow it.

The seasons of the year for sowing must be chosen according to the use for which the turnips are intended : those for seed are to be sown in Spring ; but this is the smallest quantity. Those intended for food of cattle are to be sown either at Midsummer for a Winter crop, or in Autumn, for one late in Spring, which last method has very great advantages. The Midsummer sowing subjects them more than any other to that dangerous enemy the fly, which feeds on the first leaves : the Autumn sowing, on the other hand, is apt to introduce that distemper in the root itself called the am-bury. Those of the Spring sowing often escape these accidents, merely from the rains of that season, but they come to their growth at a time when they are least wanted ; therefore we should endeavour to obtain, for the Midsummer and Autumn sowings, the same kind of security which nature gives to those of Spring. Those sown at Midsummer should have the ground plowed about five weeks before to sweeten, and then tray fallowed just before the sowing ; after which the seed should be harrowed in, and if rain follows at the time of their shooting, they will be very secure. One pound of seed is the general allowance for an acre of land.

The time which is called the Midsummer sowing may be varied according to the nature of the soil : where that is cold and somewhat heavy, the beginning

of June is the best time ; but in lands that are extremely light and warm, it will be better to keep the seed out of the ground till the latter end of July. At whatever time, and in whatever manner turneps are sown, rolling will be of great advantage to them ; it presses the ground about the seeds, and gives strength to the first shoots.

When the crop makes its first appearance the ground should be carefully watched. If the fly attacks the young plants, they are often intirely destroyed by it ; in which case the business is to sow the land again as quick as possible.

When the plants have got four or five leaves, they should be hoed to destroy the weeds, and to cut up the plants when they are too thick, leaving the remaining ones about six or eight inches asunder each way, which will be room enough for the plants to stand for the first hoeing : the sooner this is done when the plants have four leaves, the better they will thrive ; but in the second hoeing, which must be performed about a month after the first, they should be cut up, so as that the remaining plants may stand fourteen or sixteen inches distance, or more, especially if they are designed for feeding of cattle ; for where the plants are allowed a good distance, the roots will be proportionably large ; so that what is lost in number will be overgained by their bulk. But in such places where they are sown for the use of the kitchen, they need not be left at a greater distance than ten inches or a foot, because large roots are not so generally esteemed for the tables.

When turnips are sown in drills (which is a method used by some farmers) they will require to be hoed by hand, to separate and cut out the plants, where they are too near together in the rows ; as also to cut up the weeds between the plants, where the plough cannot reach them. If this is carefully performed, the plowing of the intervals will encourage the growth of the roots, by thus stirring of the ground, and make it much better prepared for the crop of barley, or whatever else is sown the following Spring.

Among

Among the various weeds incident to turnep fields is the charlock, which has so much the appearance of the turnep itself in the first growth, that the unskilful may easily take one for the other.

The worst evil that attends a crop of turneps is that of their being destroyed by the fly, which usually happens soon after the plants come above ground, or while they are in the seed leaf; for, after they have put out their rough leaves pretty strong, they will be past this danger. - This always happens in dry weather; so that if there should be rain when the turneps come up, they will grow so fast as to be in a few days out of danger from the fly; and it hath been found that those which have been sown in drills have escaped it much better than those sown in broadcast; but if foot is sown along with the surface of each drill, it will be of great service to keep off the fly, and a small quantity of it will be sufficient for a large field.

The best method, when turneps are sown in drills, is to plow between every row at first, and sometime after to plow the alternate intervals, by which means the plants will receive more benefit from the often stirring the ground, than they would do if all the intervals were hoed at one time; and plants will be in less danger of suffering from the earth being thrown up too high on some rows, while others may be left too bare; but when the earth has been thrown up on one side of the drill, it may be turned down again soon after the next interval is ploughed. This alternate moving of the earth will prepare the ground very well for the succeeding crop, and greatly improve the turneps; but as the plough cannot well be drawn nearer to the drills than two or three inches, the remaining ground should be forked to loosen the parts, and make way for the fibres of the roots to strike out into the intervals; otherwise, if the land is strong, it will become so hard in those places which are not stirred, as to stint the growth of the turneps.

When the ground is thus stirred in every part, one

plowing will be sufficient, after the turnips are eaten, for the sowing of barley or any other crop ; so that there will be an advantage in this, when the turneps are kept late on the ground, as will often be the case, especially when they are cultivated for feeding of ewes, because it is generally the middle of April before the ground will be cleared ; for late seed in the spring, before the natural grass comes up, it is the most wanted, where numbers of sheep or ewes are maintained, and one acre of turneps will afford more feed at that season than fifty acres of the best pasture.

When the season comes for eating the turneps, it is best upon all accounts to do it on the ground ; for the dung, urine, and sweat of the creatures, while they feed, enriches the earth. But the turneps should always be pulled up ; for if they be eaten as they grow, they are never gnawed clean down ; in which case they grow again after the land is plowed, and will spoil a good crop that may be sown upon it afterwards ; for when the turnep rises as a weed, there is none worse. When the ground wants the refreshment of the dung and urine of the sheep, the best way is to enclose a piece of it into a kind of fold, with hurdle-fences, and so pull up all the turneps in that compass, and lay them on the ground. When they have eat these, the fold is to be removed, and a fresh piece of the ground inclosed in the hurdles, pulling up all the turneps in that space as the other, and so on through the whole field.

When the turnip field is in good heat, and does not require this assistance, the best way will be to feed the sheep upon some piece of land that does ; thus, Make a fold with hurdles upon the land intended to be enriched, and putting in the sheep pull up the turneps out of their proper field, and put them into the fold : the sheep will eat them up, leaves as well as roots, and the hurdles are then to be removed to make the fold in a new place, and so on till the whole ground has been covered.

In order to save good turnep seeds the farmer should transplant some of the fairest roots in February, placing

cing them at least two feet asunder each way, observing to keep the ground clear from weeds, until the turneps have spread so as to cover the ground, when they will prevent the weeds from growing. When the pods are formed, you should carefully guard them against the birds, otherwise they will devour them, especially when the seed is near ripe; at which time you should either shoot the birds as they alight upon the seed, or lay some bird-lime twice upon it, whereby some of them will be caught; and if they are permitted to remain some time, and afterward turned loose, they will prevent the birds from coming thither again. When the seed is ripe it must be cut up, and spread to dry in the sun; after which it may be threshed out, and preserved for use.



C H A P. XVI.

Of Beans.

TH E R E are various sorts of this kind of pulse; but as the horse bean more materially concerns the attention of the farmer, we shall principally confine ourselves to the cultivation of that sort.

The best soil for this purpose is a tough loam, which is rendered black by a large mixture of good mould in it. They will also thrive very well in that black deep earth which is upon the borders of fenney ground; and wherever their roots can be kept moist, and defended from the sun.

The situation of the land is another article of consequence for a bean crop. They require air, and yet will not bear too much exposure. Experience has shewn us, that in small inclosures beans will by no means succeed, nor will they ever produce an abundant crop upon hilly ground. The most proper situation therefore is in some large inclosure in the flat ground where

where they are safe from blasts by the place being under cover, and where yet there is a free course of air and moisture at the bottom.

When the land is chosen, the preparation of it for the crop lies in a very small compass : for as it naturally follows some others of a more valuable kind, the greater part of this has been executed before. They themselves serve to prepare it in succession for corn, and in particular for wheat ; for the beans shade and mellow the ground with their tall stalks ; and as they must be kept weeded, or they yield little produce, the same weedings render the ground clean for the growth of the corn.

The culture of the garden bean and horse bean is so much the same, that the farmer who lives near a great town, or in the way of a large demand, may raise the garden kinds at pleasure, by the same methods as we shall lay down for the horse bean ; but he is to consider this latter as his more proper concern, for the value and use of a crop of horse beans are universal.

In choosing the seed he is to have regard to two kinds : these are the common horse bean, and the tick or large horse bean, the latter of which, where the ground is proper for it, is by far the most valuable. This tick bean is as large as the small notspur bean, and answers all the purposes of horse beans better than the common kind, but it requires more culture and a better soil. Therefore, if the soil and situation of the ground intended for a bean crop be fully such as here directed, let the farmer get the true tick bean for seed, which he will know by the size, and the fresh and fine colours the best are to be had from the Hertfordshire farmers and they should be found, and of the last year's growth for though they will shoot at two or more years old, the plants are never so strong ; and for that reason the crop is more subject, in its first growth, to that mischievous insect the dolphin fly, which in dry seasons is often as fatal as those that infest turneps.

If the soil is but indifferent the farmer should chuse the common horse bean, which, though inferior to the
tick

tick, will thrive with less nourishment. If he chuses to meddle with the garden beans, the Hotspur, Toker and Sandwich are the best kinds ; or if his ground be very rich and well sheltered, he may use the Broad Windsor

Whatever kind of bean is chosen, there will be a great advantage in steeping it, the best method of doing which is thus : put into a large tub three pecks of dry sheeps dung, two pecks of pigeons dung, a bushel of the dung of common fowls, and a bushel and half of very old and well rotten horse dung, from a good old dunghill ; stir them well about with a birchbroom, and let the whole stand together twelve hours, repeating the stirring of it once in an hour ; then let it settle, and draw off the liquor into another vessel thro' a sieve. Into this put as many beans as it will cover, and let them lie twenty-four hours ; then take them out, and plant them immediately.

The most proper time for sowing horse beans is the middle of February, the common sort a little sooner than the tick bean ; but that should never be out of the ground longer than the end of the same month, in the coldest grounds ; and in those which are a little warmer, not so long.

Various are the methods used by different farmers in putting them into the ground. The favourers of the new husbandry prefer the horse-hoeing distance ; but, in the common course, they may be either sown by broadcast, or planted by hand. The course way of sowing seems most allowable when the common horse bean is sown, and that upon ground which does not allow any great prospect of abundance in the crop ; but when the tick bean is used, and the steeping method followed, they should be planted by hand.

The best method of sowing them by random is this : chuse the soundest and best beans of the common kind, and take four bushels and a half for every acre. Plow up the land carefully, and about the fourteenth of February sow the beans by broad cast, going twice over a place, and plow them in. This makes
short

short work of the article of sowing, nor does these beans need steeping. Thus let the ground lie, till the beans begin to shew themselves above the surface. By this time there will also appear the first shoot of the weeds ; and the ground is then to be harrowed, which will at the same time answer the natural purpose of harrowing for the beans, and will destroy this first crop of weeds. A short toothed harrow must be used for this purpose and the work is to be done with care, not to tear up the beans. Let the ground lie thus three days, and when it is taken in the benefit of the air and dews for its new broken surface, bring on a heavy roller and go carefully over the whole field. This presses down the mould which the harrow had broken, and which the weather has in those few days mellowed ; and the roots of the beans are well fixed by it. At the same time the surface is laid level for the time of mowing. A scythe will take such a field entire with the greatest ease and regularity. After this, provided the ground has been tolerably clean, there will not be any growth of weeds of great consequence. If otherwise, and they appear rank, it will be best to allow one good weeding, not only for the sake of the crop, but the future advantage of the ground.

If the land is exceeding good, and the tick bean is chosen, they should be planted by hand. This is to be done by means of a setting stick, which is called a dibble. It should be made of the handle of an old spade, cut off eight or ten inches below the hole, and pointed with iron ; which latter should be notched upwards in the manner of beards to prevent the hole being too smooth at the sides. For this purpose the ground is to be plowed light and hollow, and the beans, fresh from the steeping, are to be given to the people employed in this work. Then a gardener's line being stretched within a foot of the edge of the field, they are to be directed to plant along that, opening a hole with a dibble at every six inches, and dropping in a bean. When they have gone the length of the line they are to carry it straight forward till they have made one compleat row at a foot from the edge of the field :

and then they are to stretch it again at eighteen inches distance from the first row, and there plant another. Thus the whole field is to be planted in rows at eighteen inches distance and with the beans at six inches distance in the rows. Great care must be taken in the planting, that all the beans be let in nearly at the same depth, which should be about three inches ; and that the hole be made with one stroke of the dibble, jobbing it straight down and pulling it lightly up again ; for if it be turned in the hole, or pressed on any side, it makes the mould cake there, and the roots of the young beans cannot pierce it. The ground is to be all harrowed over immediately after sowing ; and this covers up the beans regularly.

When the beans just shew their heads above the ground, the whole field should be rolled : this fixes the mould to their roots, and levels the surface for the mowers ; and at the same time it crushes, in some degree, the light rooted seedling crop of weeds. When the beans are half a foot high, the whole ground should be hand-hoed ; and this must be repeated when they begin to pod. The expence will be abundantly answered by the great produce, and the ground will be in excellent condition for another crop.

Having thus described the common method of husbandry in raising beans, we shall now proceed to that of the drill, which has been so improved as to be also capable of setting them expeditiously and regularly.

The most convenient way of using this is by chusing a dry day, when rain is to be expected very soon ; but when the season is not so favourable as to allow of this, it is still a very good method to plant them in regular drills, opened by a common foot plough with a piked share. The ground must be in good tilth, and when the drills are thus made at a moderate distance, the same plough is to be drawn back between them. This turns up the mould, and, leaving a hollow, makes it easy work to cover the beans in the drills. The best distance of the rows in this disposition is three feet ; and they are therefore easily kept clean afterwards. The garden beans of the largest kinds may be

raised very successfully by the same method; and in either case the crop is easily managed, and the ground will be left in good condition afterwards.

When beans and pease are sown together it should be done by the broad cast way, going twice over a place. The ground should have two plowings, to make it loose to receive them, and they should then be plowed shallow in; after which the harrow must be brought over the ground, and after the roller. When the plants begin to appear the rest of the management must be the same as in lands sown by the broad cast way with beans alone.

Those who may chuse to sow the mixed seeds more regularly may do it by means of a foot plough, opening drills for them at a yard distance, and then covering them up with a hand hoe; for they cannot be drilled out of any drill box together, because of the different size of pea and bean. This method of sowing them in drills will give room for culture while they are in the ground, and the field will by that means also be cleared from weeds, and well prepared for the following crops.

At the time of harvest beans are to be cut with a hook, or mown with a scythe, according to the different manner in which they are sown. The last is the short way, and will answer best of all upon lands sown in the promiscuous manner, and which have been well rolled in Spring. When they are drilled or planted in rows, the hook answers best. Whichever way they are cut, they must be carefully cured upon the ground; for often long keeping brings a large price; and where they are well dry'd at first there is little danger of this. They should be two days and a half upon the ground without turning; then they should be turned, and thrown upon a dry part of the field. If any wet falls, they must lay till it is dried off before they are turned again; and they should never be moved while wet with the dew: they must be always thrown up hollow, that the wind may play among them; and they must in this manner be turn'd from time to time, till the whole

whole stalk, as well as pods, is nearly dry'd.

When they are thus hardened, they are to be rais'd up in moderate bundles to perfect the drying. The method is, to gather the stalks in even parcels, and tie them round the middle, and then set them at equal distances over the field. After this they should be very carefully stacked, and kept till wanted. They may be kept also thresh'd, and this way lie in a small compass: they are in some places put up in four-bushel sacks, and these, being set out of the way of vermin, will keep good till there is a demand for them.

Garden beans are of various sorts, but that which is generally cultivated, and allowed to be the best of all others for the table, is the Windsor-bean. When these are planted on a good soil, and are allowed sufficient room, their seeds will be very large, and in great plenty; and when they are gathered young are the sweetest and best tasted of all others. The seeds of these should be carefully saved, by pulling out such of the plants as are not perfectly ripe, and afterwards by sorting out all the good from the bad beans when they are out of the pods.

This sort of bean is seldom planted before Christmas, because it will not bear the frost so well as many of the other sorts; it is, therefore, generally planted for the great crop to come in June or July.

Those beans which are planted early in October, will come up by the beginning or middle of November, and as soon as they are two inches above the ground, the earth should be carefully drawn up with a hoe to their stems; and this must be two or three times repeated, as the beans advance in height, which will protect their stems from the frost. If the Winter should prove severe, it will be very proper to cover the beans with pease haulm, fern, or some other light
K covering

covering, which will secure them from the injury of the frost : but this covering must be constantly taken off in mild weather, otherwise the beans will draw up so tall and weak as to come to little ; and if the surface of the border be covered with tanner's bark, it will prevent the frost from penetrating into the ground to the roots of the beans, and be of great service to protect them from the injury they might otherwise sustain.

When the beans are advanced to be a foot high, they should be fastened up to the hedge with packthread, so as to draw them as close as possible ; which will secure them from being injured by the morning frosts, that are often so severe in April, as to lay those beans flat on the ground which are not thus guarded : at this time all suckers which come out from the roots should be very carefully taken off, for these will retard the growth of the bean, and prevent their coming early. When the blossoms begin to open toward the bottom of the stalks, the top of the stem should be pinched off, which will cause those first pods to stand, and thereby bring them forward. But lest the first crop should be destroyed by frost, it will be absolutely necessary to plant more about three weeks after the first, and so to repeat planting more every three weeks or a month, till February ; but those which are planted towards the end of November, or the beginning of December, may be planted on sloping banks, at a distance from the hedges ; for if the weather should prove mild, these will not appear above ground before Christmas ; therefore will not be in so much danger as the first and second planting, especially if the surface of the ground is covered with tan, to keep the frost out of the ground. The same directions which are before given will be sufficient for the management of these ; but only it must be observed, that the larger beans should be planted at a greater distance than the small ones ; as also, that those which are first planted must be put closer together, to allow for some miscarrying ; therefore when a single row is planted, the beans may be put

two inches asunder, and those of the third and fourth planting may be allowed three inches ; and when they are planted in rows across a bank, the rows should be three feet asunder. The principle care in the management of the latter crop of beans should be, to keep them free from weeds and other plants, which would draw away their nourishment ; to keep earthing them up, and when they are in blossom, to pinch off their tops, which, if suffered to grow, will draw the nourishment from the lower blossoms, and thereby prevent the pods from setting, so that only the upper parts of the stems will be fruitful.

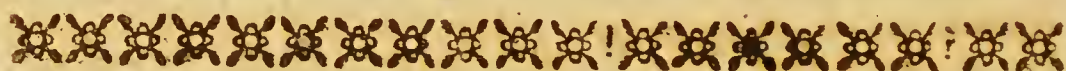
Another thing also should be observed in planting of the succeeding crops, namely, to make choice of moist, strong land, for the latter crops ; for if they are planted on dry ground they rarely come to much, unless the Summer proves wet.

These latter crops should be successively planted about a fortnight after each other, from February to the middle of May ; after which time it is generally too late to plant, unless the land be very strong and moist ; for in warm, dry, light land, all the latter crops of beans are infested by black insects, which cover the upper part of their stems, and soon cause them to decay.

When the seeds of the beans are designed to be saved, a sufficient number of rows should be set apart for that purpose, according to the quantity desired ; these should be managed in the same way as those which are designed for the table : but none of the beans should be gathered. When the seed is ripe the stalks should be pulled up, and set upright against a hedge to dry, observing to turn them every third day, that they may dry equally ; they may then be threshed out and cleansed for use, or otherwise stacked up in a barn, till there is more leisure for thresh-

ing them out ; and afterwards the seed should be drawn over, to take out all those that are not fair, preserving the best for sowing, and the ordinary for feeding cattle.

It is essentially necessary to change the seeds of all sorts of beans, and not to sow and save them long in the same ground, for they will not succeed so well. If therefore the land be strong when they are to be planted, it will be the best way to procure seeds from a lighter ground ; but if the land be weak, from a stronger, for by this means the crop will be larger, the beans fairer, and not so liable to degenerate.



C H A P. XVII.

Of Pease.

PE A S E have been the advantage over beans in the farmers consideration, in that there are but few lands that agree well with the bean ; but one or other kind of the pea will suit any. The poorest will produce very good crops, when the kind of pea is well suited to them ; and from such as are better there will be great abundance.

To direct the farmer rationally in his choice of ground for these crops, we must first explain to him the more usual kind of pease for the field culture.

The first and most general of these is the Wind-for Grey. This a larger and of a blue-grey colour, hardy enough to admit of early sowing, and will always thrive where there is a good hold for its roots, and some moisture. Loams are the best

best soil for this sort, and in such of these as are stiff and moist, it will bear a vast quantity.

The Horn Grey is a new pea among the farmers of many counties, but is now getting into great repute for its hardiness. This pea is large and firm, and in colour paler than the Windsor. It will grow upon light sandy loam, and produces great increase. This fattens and perfects the hogs as well as the Windsor Grey.

The Cobham pea is another of the large grey kind, and is superior to the Horn Grey and Windsor, but is tenderer than either of them. It requires a fine and good soil, the more like garden ground the better; and this must be well prepared, and it must be sown late. These are disadvantages to the farmer, but its great bearing, and the excellence of the pea itself, make amends; and when he has a rich black mould for a pea crop, this will be his best choice; it will yield a vast abundance, and will leave the ground better than it was.

The large white hog pea, cultivated in some parts of Hertfordshire, and which they call the Purlan pea, is one of the Cobham kind, but different from the former, in that it bears a very ordinary soil, and will yet yield a large increase.

The Iron Grey pea is a very hardy one, of a dusky colour, and thick coat. It will grow on chalky or white poor land, where the other pea crops fail; though its most favourite soil is a rich loam.

These are the kinds of pease principally in use, from one or other of which the farmer may raise a good crop upon any sort of land. In general, the less the land has been manured, the earlier the pease will ripen; but the richer it is the greater will be their produce.

The usual and proper general time of sowing pease is February ; and according to their kinds, and the nature of the soil, they may be sown at that season various ways. Some prefer the sowing promiscuously, according to the old method of husbandry ; others are altogether for planting them in rows ; and this last, as well as the former, is done various ways, and with different distances between the plants, whether by the spaces left between the rows in regular planting, or the greater or lesser allowance of seed in the promiscuous sowing.

But whatever way the farmer uses, he should have regard to the bigness of the pea, for this is very various in the different kinds, so much as to occasion double the quantity of seed in the smaller kinds, though they are much also more numerous in the same measure in the common way of sowing : two bushels or two and a half to an acre is enough of the largest kinds, for the biggest pease make the largest plants ; of the middling size three bushels may be allowed, and of the smallest four.

Those pease which are late sown should have the benefit of steeping ; this must be done in the same manner as directed for the beans, only omitting the pigeons dung. It will give them a strong first shoot, and they will afterwards make good their growth much better for it to the harvest.

One way of sowing the field pease is by throwing them by broad cast on the ground, rough as the plough left it ; but this is the worst of all. When any thing like this is intended, as it may be very proper for a hardy pea in a light land, it is better to sow by the broad cast, and plow it in. The covering is thus thicker, ; and it is required for the pease sown so early as these kinds are.

There

There is a peculiar kind of rake used in some places for sowing pease, the tines of which are long enough to open drills ; and as from its make, several of these are opened at a time, the work is done very expeditiously. The structure of this is like that of the common garden rake, only the cross piece is thicker, and the tines are few and large, five is the best number. The ground being in very good order, the drawing these tines opens so many drills, into which the pease are dropped, by those who follow the person that draws it ; and they are afterwards covered with a short tined harrow. The ground must be light and in good order for this, otherwise it will not open the drills with any regularity.

In other places they make the same kind of instrument with the teeth strait down from the handle, and use it for pease as they do the setting stick or dibble for beans. One person strikes it into the ground, and another following him drops a pea into the hole. A light harrowing then covers them ; and levels all the surface. Probably in this way, if two pease were dropped into every hole in the place of one, the purpose would be better answered, as the two would give nearly a certainty that there should be no miscarriage in any of the holes.

Whichever way pease are sown, the field will require to be weeded soon after they are above the ground ; otherwise they will be starved in the first shoot, and overpowered by the weeds. This is as necessary in the promiscuous way of sowing as any other, though it is performed with great difficulty. The hoers must take care not to tread down too much of the crop ; and they must not only hoe up the weeds, but judiciously thin the pease themselves where they have risen too thick.

The ripening of the peas in their pods is to be carefully

carefully watched, for upon that will depend the reaping them at a proper season; and this is a very essential article in the value of them. When the pease are very healthy, there is an appearance of part of their juice in the manner of that upon ripe plums, which covers the stalk with a kind of blue mould; and if it goes off as the pods begin to form, there is reason to expect a large crop. In those pease which are raised for the table the garden custom must be observed, of gathering the pods as fast as they ripen; but in the field, or hog-pea, the farmer is to watch the best time of cutting the whole crop at once, when there is most upon it; that is, he must take it when most of the pods are ripe, and none fallen. This is the time for cutting; for if he stays till some are shed, a great many more will be shed before he is aware, and the loss will be much more than those unaccustomed to these things can imagine: on the other hand, if he cuts them when they seem in general not ripe enough, they will in some manner ripen upon the ground. He is to observe when the greatest part are hardened, and yet the pods of the ripest are not burst, or but beginning to burst, and this is the true time for cutting them.

The best method of reaping pease is by the hook: this should be fastened to a long handle, and the edge must be kept sharp. There is some trouble in managing them when they grow promiscuous, but when they are in regular rows, whether sown by the drill-plough, or planted by the instrument already named, the plants stand so regularly that the reaping may be done with great expedition. This is of importance not only as to the sowing in price of labour, but for the advantage of the crop; for when the pease are ripe enough to cut, the sooner that is done the better. The pea requires to lay some time upon the ground; but it should lay in heaps, not spread. It is easy to gather them into these small heaps as they are reaped, and throw them
up

up hollow, that the wind may blow in and dry them. If the heaps be carefully thrown up at first they will need no turning; which is a great advantage, because pease are very apt to shed in moving. When they have lain till thoroughly dry, they must be carried in, taking the greatest care to move them gently to prevent loss. If it happens to be wet weather when the pease lay out, they must not be turned, but suffered to remain to dry again; for their laying in heaps will save them from much damage. The best way of keeping them is out of doors in a stack; for when they are housed they seldom preserve a good colour.

In several parts of the kingdom the farmers have now a method of sowing pease, beans and oats together in one field; but the seed must be put in at different times, or it will not ripen together. The mixture being convenient in many cases, we shall give the best method of doing it.

Plow up a barley-stubble, and then scatter three bushels of common horse-beans by broad-cast over the ground; plow these in and let the ground lay sixteen days; then sow the oats and pease, allowing also two bushels of each to the acre. Harrow these in; and the same harrowing will also answer for the beans. The oats will ripen at harvest time, a little before the pease and beans, and this must be the mark of the season for cutting them; for if the farmer was to wait for the ripening of the pease and beans, the oats would be shed; whereas, if he cuts the whole when the oats are just safe from shedding, the beans and pease will ripen with lying, and the whole crop will yield an excellent food for the horses. They may be all threshed together; and being afterwards mixed with the chaff, they go a great way, and are very wholesome for feeding of those horses that do common work.

Having thus directed the best method for cultivating pease in the field, we shall proceed to make such observations as may be of use for obtaining those in the garden.

The distance between the rows should be proportioned to the size to which they grow. The channels in which they are sown should be about two inches deep; and the quickest and most regular way to perform this work is, to draw a small hoe, directed by a line, along the surface of the ground, so as to open a drill, then to scatter the seeds in this furrow, and to earth them over with the help of a rake. By this means they will be well and equally covered; which is essentially necessary, because if any of them lie above ground, they will attract mice, rooks, pigeons, and other birds, which will then soon find out the rest, and destroy the whole plantation. The principal trouble after sowing them is, to stick the larger sorts which require support, to keep the plants clear from weeds, and to earth them up; both which last parts of the culture are very easily, readily, and effectually executed, when a small plough can be introduced between the rows.

Among the various sorts of pease the Hotspur is naturally the earliest of all; but the gardeners about London raise by art, from the dwarf pea, transplanted into a hot-bed, a crop which anticipate the spontaneous growth of the other. To effect this, they sow their dwarf pease in warm borders, under walls or hedges, about the middle of October, and when the plants are risen, they draw the earth up gently around their stems, to protect them from the frost. They let them remain where they were sown till the latter end of January, or the beginning of February (still continuing to earth them up from time to time, as they advance in growth, and covering them with dry haulm, or straw, in case of severe frost,) and then remove them into a hot-bed made of good, new, well fermenting dung, properly mixed, that the heat may not be too great.

This dung is laid from two or three feet thick, according

cording as the season is more or less advanced ; it is covered with six or eight inches deep of light and fresh, but not too rich, earth ; the frames about two feet high at their back, and fourteen inches deep in front, are then put on, and covered with their glasses, which are propped up every day, during three or four days, to let the rising steam pass off ; and when the bed is become of a moderate temperature, the plants are taken up as carefully as possible, to preserve the earth about their roots, and planted in it about an inch asunder in rows two feet distant from each other. They are then watered a little and shaded, till they have taken root, and aired whenever the season is favourable, lest they should be drawn up very weak, grow mouldy and decay. Their stems are also earthed up as they advance in height, and they are kept perfectly clear from weeds. This first watering should be gentle, and dealt out sparingly ; for too much of it would make them grow rank, and sometimes rot them off at their shanks, just above the ground. If the weather becomes very hot, the glasses are covered with mats in the day-time, to screen the plants from the too great violence of the sun ; and when they begin to fruit, they are watered oftener and more copiously than before ; for they have nearly done growing by that time, and refreshing of them frequently will make them produce the greater number of pods.

For this purpose the dwarf pea is greatly preferred, because it is more easily confined within frames than any other sort. The reason for sowing it in the common ground, and afterwards transplanting it into a hot bed, is, to check its growth, and thereby make it bear the more in a smaller compass.

These pease must be likewise sown in warm borders about the end of October. When the plants are a few inches high they should be earthed up to defend

send their stems from frost ; and if the Winter be very severe, they should be covered with haulm, or some other light coverings, but this must be taken off as soon as the weather grows mild, lest it should draw them up weak and tender ; and the weeding and earthing up must be repeated as they advance in growth, but with care not to bury their leaves, as it may possibly rot their stems, especially if the season be wet. Both these works may be carefully performed in the spring ; and this is likewise the most proper time to kill the slugs, which, of all vermin, do the greatest injury to pease.

If this crop does well, it will immediately succeed that of the dwarf pea on the hot bed ; but lest it should miscarry, it will be right to sow two other crops, at the distance of about a fortnight or three weeks from each other. These will suffice till the Spring, when more crops of the same sort may be sown every fortnight, and by this means the early pease will be continued through the season.

About the middle of February, some of the Spanish Morotto, which is a great bearer, and a hardy pea, may be sown in a clear open spot or ground, for the next use of the family. The rows of these, which are a larger kind, should be four feet asunder, and the pease should be dropped at about an inch from each other in the drills.

To succeed these, another spot of ground should be sown about the end of February, either with the same, or any other large sort of pea ; and the sowings should be continued every fortnight, till the middle or latter end of May ; only observing to allow distances proportioned to the size of the pea at its full growth. Thus marrowfats, for example, should not stand nearer than four feet and a half from row to row, and the rose pea should be at least eight or ten

ten inches asunder in the rows : for all pease, if they are too much crowded, will run up in height, and yield but little fruit.

When these larger sort of pease are grown about eight or ten inches high, stick up some brush wood close to them, to prevent their trailing upon the ground, which is very apt to rot these kinds in particular, especially in wet seasons. By this means there will also be proper room to hoe between the rows, and to gather them with convenience when they are ripe.

Of all the large kind of pease, the marrowfat is the best tasted, and it will continue good till the end of August, if it be planted in a strong soil. The other large growing sorts may be raised for the common use of the family, because they yield the most plentifully, and can endure the greatest drought : but the early kinds are by far the sweetest. It will therefore be well worth the master's while to see that a crop of these, and particularly of the early hotspur, is sown every fortnight, to supply at least his own table during the season.

All the dwarf pease yield plentifully, if the weather be not too dry ; but they seldom continue to bear long. As they rarely surpass the height of one foot, or spread wider than six inches, about two feet and an half may be a sufficient space for weeding and stirring of the ground between their rows, in which they need not be set above an inch asunder. Among these may be classed the sickle pea, or sugar pea, which is much cultivated in several foreign countries, but is seldom propagated here, except by curious gentlemen for their own table. The pods of this pea are crooked and ill-shaped, but extremely sweet when boiled with their unripe fruit in them, as is the general way of dressing them ; for they have not any tough inside skin, like

L the

the pods of other pease. If they are planted in April, they will be fit for gathering by midsummer. Their pods, when they are very young, and their tendrils, have an agreeable acid flavour in sallets ; as have also the young tendrils of the hop and the vine:

One general rule to be observed in the planting of all kind of pease is, that the later they are sown, the stronger and moisture must be the soil.



C H A P. XVIII.

Of Tares.

TA R E S are of two sorts, viz. the white and the black. These are named after the colour of the seeds, and have little other difference ; they properly are only feminal Varieties of the same species ; the white tare rising originally from the seed of the black, as the common blue and red flowers of many kinds in our gardens will occasionally yield such as are white. In the same manner the first variation in this kind of tare is, that the flower is white, whereas it is purple in the other ; and the seeds afterwards are of the same colour. Either of these may be sown in fields, and they will answer the same purpose ; but the common or black tare is the hardier kind, and the best bearer.

There may be a great advantage in the sowing of tares properly, among the variety of articles with which the present practice of husbandry gives the farmer an opportunity of varying his crop. They excellently prepare the land for corn, and their produce is of a certain and not inconsiderable price, being the proper food of pigeons, and useful for many other purposes, The

The tare is a hardy product, approaching to the nature of a weed ; and it will therefore grow either on land naturally poor, or such as is exhausted : this is what makes the farmer find his principal advantage in its culture ; for it not only thus stands in the place of barrenness, but prepares the ground for better crops.

Notwithstanding most soils will do for the tare, yet, like all other plants, there are some that it affects more than others. This is a material consideration to the husbandman. The great variety of articles of late years introduced into his profession, gives him an opportunity of varying the crop on every occasion, and among these inferior as well as among the richer kinds, he will find a double advantage in a prudent choice, which is most shewn in suiting the species to the nature of the soil.

The most favourable land for tares is a good sandy loam. They will succeed excellently on mellow earth, if not too moist for them, which is a very common inconvenience in that sort of ground. They will succeed very well on sandy ground, that is not rich in any respect ; and we see great crops of them in the lime-stone countries, and that frequently where there is very little depth of soil.

The worst ground for the Tare is a tough wet clayey soil. In Hertfordshire, where a great quantity are raised, they find them always succeed better on the hilly grounds than in the vales.

The soil and situation being thus fixed upon, there requires little care in the making it ready for the reception of the seed. By this choice we do not mean to tye the farmer down so strictly, as that nothing else will do but such a field as we have described, but when it happens that he has the choice of two or three,

and one of them answers this character better than another, he should take the best.

We will suppose the field where they are to stand has been pretty well exhausted by the last crop of corn. In this case no preparation by manure, or repeated tillage is wanted ; all that is needful is to plow in the stubble, which must lay till it rots, and in spring to open the ground for the seed. These kind of crops are so far from demanding manure, that they serve as manure to the land themselves ; and of them all none more than this species.

When the land is ready, the next thing is to take care of the seed, and in this the husbandman should not be negligent : a little care costs nothing, and it ensures a profitable crop.

Let the seed tares be bought or purchased by exchange from some farmer, at ten or twelve miles distant. The advantage and use of this, in all seeds, has been shewn already ; and let the farmer who is to sow them take care to purchase such as have grown on a different kind of soil from his own.

Thus, if this field be mellow earth let him chuse the seed tares from a loamy or sandy soil ; and on the contrary, if it be sandy let him chuse the seeds from one that is otherwise.

Those tares are in general best for sowing that are of a middle size, round, full, and plump, of a smooth and bright surface, and heavy. There is reason the husbandman be careful in this choice, because few seeds are so apt to spoil ; and all pains are thrown away upon land where there is a defect in the seed.

The tare does not grow well unless it has been full ripe when gathered ; and if it has suffered wet
in

in the keeping, it looses a great deal of its vegetative power. These are the two accidents the farmer has most to fear, and he will be guarded against them by the rules we have given for his choice. Such tares as have been gathered before ripe never get that roundness, fullness, or weight we have recommended ; and if they have been damp so as to receive damage, they lose that glossy surface which they will never again recover.

The seed being thus chosen, the quantity is next to be considered ; and this the common practice comes nearer what is right, than in most other seeds. The general error is the sowing too much, and what mistake there is, is on the same side here, but 'tis not great, above five pecks are generally allowed to the acre, but a bushel is fully sufficient : three pecks will be very well.

There is a greater crop from a few flourishing plants, than from a great number which starve one another.

The best time for sowing them is in the middle of February. Very little trouble need be taken about them, for the most slight stirring of the ground is sufficient ; but of one thing the husbandman must take special care ; which is the finishing what he undertakes in this way without delay. There must never be more sown in a day than can be well covered before evening ; for if they lie exposed to the dews of the night, they contract a damp that decays a great part of them ; and the rest will never come to their proper perfection.

In general, a poorer is better than a more rich land for tares. In the former they pod well ; in the latter, they are apt to run into stalk and leaf with less bearing. There is also another misfortune attending the sowing of tares on rich ground, especially if it be a little moist, which is, that they are more subject to

lie upon the ground, because of the weight of the stalk, and then they rot.

The farmers of Essex, and some other counties, have a method of sowing tares and horse beans together; they thrive tolerably well in this way, but they do better singly. There is no difficulty attending the reaping of them, for they may be very well cut together, when ripe, as they will be about the same time; and the different sizes of the bean and tare make them easily separated in the barn by a riddle.

The crop being on the ground will require no farther care of the farmer, for they will shoot quickly, and grow vigorously. There are two seasons of cutting them, the one for the straw, as it is called; that is, for the green plant, for the food of cattle; and the other for the feed.

The first may be continued at different times for several weeks, and it is a very wholesome and profitable food; the other is only to be done at one time, that is, when the tares are ripe in the pods; and for the knowing the exact period for this, the tare is to be watched in the same manner as the pea.

The cutting them for fodder is of the most important service they can be put to; as to letting them stand for ripening, it is for seed, or for food for pigeons; but as when the farmer keeps a quantity of these, as he must either raise or buy tares, this is a considerable article.

If a favourable season follows the time of sowing the tares, they will be fit to cut in May for foddering cattle in the rack; and, upon occasion, they may before that time serve for feeding fresh in the field.

The great advantage of all these crops of ordinary pulse is, that they cover and shade the ground. The
tare

tare being larger than some of the others, serves this purpose better than they, and its seeds, or the ripe tares being of use, is another advantage, because it may be kept longer upon the ground. For this reason, though the farmer may occasionally cut his tares green, yet I advise him when he would give the ground the greatest advantage from them, to let the whole crop stand till ripe. In this case the entire field is covered for a very considerable time, there are no weeds suffered to grow in it, and the whole is mellowed by lying under the covert of the stem and leaves of the tares, while their roots draw forth but little nourishment to impoverish it. The tares being then observed from time to time as they ripen, are to be reaped at the period when they are fullest of rich pods; and then left to dry in the field in little heaps, before they are carried home for getting out the seed.

When they are dry enough, if the weather be good, that is, dry and hot, they may get the last hardening, by spreading on a floor, and several times turning of them; but if the season does not admit of this, they must be dried upon a kiln with a very moderate heat; for when they are put up damp, they always get musty and so lose their power of growth, as to be neither fit for food nor seed.

When they are once properly dried, the best way is to thrash them and put them up clean; for if they are kept in the pods they will be always subject to accidents; but if they are well put up in barrels in a dry cool situation, they will be preserved from all danger, and may be kept to any length of time.



C H A P. XIX.

Of Thetches.

TH E S E are likewise of the pulse kind, and as they will thrive well in a damp soil, so they are more useful to the farmer who may want to improve a wet piece of tillage ground with small pulse ; for the tare would not succeed in this sort of ground. The best soil for the thetch is a black mould, and it will thrive better after barley than any other grain.

There are two sorts of thetches, viz. the Winter thetch and the Summer thetch, the former should be sown in October, and the latter in February. The land will require no other preparation than once plowing. If the Winter thetch be sown in the beginning of October, it will be high above the ground in the beginning of Spring, & may either be mowed, or eaten on the ground, whichever the farmer may think most beneficial. The feeding on the ground has the advantage of improving the land by the dung of the animals which feed upon it ; but the mowing will make the crop last much longer. The Summer thetch will be fit for mowing the first week in June ; or if there be occasion for it earlier, it may be eaten on the ground in the beginning of May.

When the ground on which the thetch is to be sown is tough and clayey, the seed should be scattered on ridges, and plowed in, and harrowed over afterwards ; but if the earth be mellow, it is best to sow them in broad lands with a single plowing, and harrow in. This different method of sowing should in some degree direct the manner of using the crop ; for when the thetch is sown on ridges, as it will be difficult to
mow,

mow, it should be eaten on the ground ; whereas, when it is sown on broad lands, and is therefore regular in the growth, and easy to be mowed, the best way by far is that : because the produce of fodder is much larger as the crop is, and the land has the more benefit.

Three bushels of seed should be allowed to the acre, for the more the ground is covered by a multitude of stalks, the more advantageous it will be to the farmer. These crops will take care of themselves ; but as here must be seed saved for exchange, and to keep up the crop, the driest and warmest part of the ground is fittest for ripening the seed, and a quantity of the plants on such a spot must be reserved for it. This must be considered at the time of sowing, and such a spot being selected, the seed should be sown there but in half the quantity, in proportion to the rest of the field. When the plants are come up, they should be cleaned and thined in this part by hoeing, and if cattle are turned in to feed upon the ground, this spot must be fenced off from the rest.

When the pods are ripe, the thatches are to be cut with pea-hooks, and thrown up in small heaps to dry ; after which they are to be carried in and spread upon a dry floor with a thorough air ; and this will make them in a few days fit for thrashing. The seed afterwards should be again spread on the floor, and, when hardened, put up for use.

When the crop is off the ground, wheat or any other corn will thrive excellently upon it ; or if the farmer chuses a turnep crop, there is no ground on which it will rise in greater perfection. Cole-seed which is another plant of the turnep kind, always succeed peculiarly well after thatches.

If the spring thatches, which have been set aside for feed, do not ripen their pods in such good time
as

as might be expected, the farmer need not be uneasy ; for they will cease growing on the decline of heat in Autumn, and then the seed will ripen in a few days.

The green thetch is the most wholesome of all other food for horses. Cows feed on it with pleasure ; and it not only makes them yield a great deal of milk, but the most excellent of its kind. The ewes, while lambs follow them, thrive better upon the thetch field than almost every other food ; and the lambs will shew, by their good condition, that it has the same effect on their dams, as on the cows, making them yield excellent milk in great abundance.



C H A P. XX.

Of Rape or Cole-Seed.

TH E most proper soil for this plant is a rich deep mould, such as in the fens in Cambridgeshire and Lincolnshire. Low meadow lands that can be made and kept dry, yield great plenty of seed from this plant, and any rich mellow piece of ground, that is not too much exposed, will yield a great return with this crop. But exclusive of these natural soils, if the farmer has at any time a new broken up piece of ground that is too rank for wheat, he should sow coleseed, for the ground will be after it in an excellent condition for the wheat, and the crop will be very advantageous.

It will be much better for the farmer to get his seed from abroad, as that will always succeed better than

than our own ; and he should be careful to chuse the largest, heaviest, and brightest that he can.

He should begin to sow the seed about the middle of July. The ground must be made fine, and they must be harrowed in, and rolled down with a heavy roller. In about eleven months from the sowing, that is, towards the end of June, the crop will be fit to cut. A sickle is the usual instrument for this purpose ; and a great deal of care is required in those who execute it ; for unless the seed be very carefully managed, it will be apt to shed.

After the plants are cut they must be laid gently on the ground, and must not be stired till they are dry, which will be in a very short time ; and a great deal of the seed that was green when they were cut will ripen as they lie upon the ground. When the upper pods are dry, and the seeds hard the whole is sufficiently dried ; the best way then is to thrash it in the field, for a great part of the seed would be lost by loading, carrying, and unloading again at the barn.

The best method of doing this is to spread out a large sheet in some level part of the ground, and to lay upon it such part of the crop as is nearest, and thrash it there. After this the haulm may be taken off, and the sheet moved a little, and so on till it has been carried through the whole field, emptying it as occasion may require.

This plant is so excellent for sheep, that many judicious farmers have sown it constantly for that use alone, leaving no vent for the seed. The leaves are more numerous than in the turnep ; and they are also better tasted and more nourishing.

If the farmer have this use of the plant principally
in

in his eye, it is certainly best to sow it in the common method ; but when the seed is the great point in view it should be drilled in double rows at a foot distance, with intervals for hand-hoeing.

In many parts of England they make an oil from the seeds of a plant, raised for that and other purposes, which they call rape-oil ; the seed they also call rape-feed and the plant, the rape or cole, or the cole-feed plant.

The seeds of the turneps, or cabbage, yield the same kind of oil ; but the rape, or cole plant is greatly preferred ; because without spending itself in root and leaves, it runs up to a great quantity of seed ; as also because it is hardier than the others, is subject to fewer accidents, and requires less culture.



C H A P. XXI.

Of Lentills.

THOUGH this plant is not only the least of all the pulse kinds as well as less profitable, yet there are cases in which it will be very useful. They serve to mellow and improve land, and are used as food for cattle, particularly hogs, who are very fond of it ; and it answers the purpose of feeding up, and hardening the fat better than any other food whatever.

There is but one direction necessary in the choice of ground for this plant, which is, to allow it only such as is very poor. It will thrive best on these
loams

loams ; and even on sand, gravel, or chalk, will not improve the ground, but yield a tolerable produce.

In chusing of the feed you should be careful that it be fresh and sound ; for few of them will grow when they have suffered by damps, as they generally do in long keeping ; and those which do grow will afford but poor and weak plants. The marks of its being good is, that it be sound, heavy, bright on the surface, and tough ; dry, and free from any bad smell.

The feed being thus chosen, the farmer may raise it various ways according to the circumstances of his land ; for it may be sown either alone, or with the Spring corn, or it may be raised either in the promiscuous way, or by the drill husbandry. When it is sown to cover the ground, and to be eaten or mowed for hay, or fresh fodder, the promiscuous way of sowing is best ; and as the plant is small, and does not cover well, a great allowance of seed should be made. Four bushels to an acre will raise a larger quantity of fodder than any other proportion ; and the roots are so slight, that they rob the ground of very little, while they mellow it considerably, tho' small, by this thick growth.

If the farmer is inclined to the feed, and does not chuse to trouble himself with the horse-hoeing husbandry for so trifling an article, he must sow lentills with his oats in Spring. In this case a bushel and half will be sufficient for an acre. So many of the plants as are raised by this sowing will rather improve than diminish the oat crops ; for the little they take of the nourishment by their slight roots, they repay ten-fold by shading and mellowing the soil about the oat roots.

There is very little trouble and expence in getting
M a

a quantity of lentil seed this way ; for the two crops grow together without any detriment to each other ; and when the oat is ripe, the other is also ready for cutting. One reaping serves ; as does also one drying, and they may be thrashed together. After this the two feeds may be separated only by throwing ; for the oat being lightest will fly farthest ; and the lentils will all drop by the way, and may be swept together.

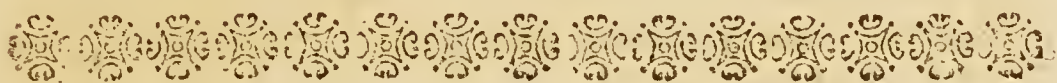
When they are full grown, and none began to shed, they must be cut. A hook is the best instrument for that purpose. They should be thrown up in small heaps lightly as they are cut, and the wind will dry them sufficiently for conveyance. The feed is then to be spread thin a few days, and is to lie to harden ; and after this it is fit to be put up for use, either for feeding the hogs for sale, or for exchange.

Those lentills which are sown for fodder should be principally dried into hay ; for the horses and oxen are as fond of them in this way as any other ; and they are not subject to be disordered by eating them, in ever so large a quantity dry.

The different service for which this hay is intended, occasions some difference also as to the time of cutting them. The oxen and cows relish the hay best, when it has been made of the stalk of full growth, but with the pods not yet gone to seed ; but the lentill, when the feed is near ripe, makes the most nourishing hay for horses ; and they are as fond of it this way as any other. It must not stand till the feed is hardened, because then the lower leaves will be decayed and even the bottom part of the stalk be of little value ; but while all is good, and the seeds are well grown, is the time for cutting it for this service.

When the lentills are cut for oxen, they will shoot
very

very well from the root, and then a crop will feed sheep, which enrich the ground while they eat it : but this is not the case when the full grown hay is cut for horses ; nor should any small crop be then expected as the lentil has sufficiently discharged its office, and prepared the ground for a new crop.



C H A P. XXII.

Of Woad.

THE IS is a robust plant, of a yard high, with great blue green leaves, and little flowers followed by small pods of seed ; and is universally known to be of great use in dying. It is at present raised but in a few parts of England, and is very advantageous to the farmer : but where there is a proper soil it may be brought into many other places with equal profit. It will, with good management, yield four crops in a year, and all of considerable value.

This plant requires the same soil that cole-feed does ; it must be rich, deep and dry ; drained for land, dry meadow ground, or any earth of the like kind, in a situation clear from wet while the crop is growing, will answer the purpose. A good deep loamy soil will also suit it very well : it may be raised even on sandy soils, though not with equal advantage.

Before the seed is sown the ground must be plowed up deep, and all the lumps broken by harrowing and rolling ; and lastly, the whole surface must be laid smooth and even. The seed should be heavy, hard and clean, glossy on the surface, and free from any ill

M 2.

smell.

smell. Five quarts of it are to be allowed to the acre, and the farmer should buy at the rate of a pint an acre more, to have it ready to make up deficiencies, where the woad has failed, or has been destroyed in its first growth.

If the farmer chuse the common method of husbandry, he must sow the seed very even, and harrow it in. If the horse-hoeing method be followed, the seed should be drilled in double rows, at ten inches distance; and there must be such intervals left, as will give room for the horse-hoe to work conveniently. It must be sown in the latter end of August; and the new seed of the same year that is just ripe, and hardened, should always be preferred.

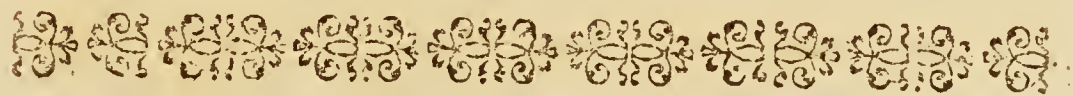
When the plants are two inches out of the ground the farmer should examine where there is any deficiency, and sow some of the seed there which he preserved for that purpose. Three weeks after which the hoers must be set in to cut up what weeds are risen, and to thin the plants where they stand too close; they should be left at about a foot from each other. After this they are to remain all Winter; and if they are sown in the common way it is all that can be done for them.

In Spring, when the leaves are taking their first shoot, the intervals must be well broke up; for this will occasion the leaves to come forward, and give them full nourishment for the whole period of its growth, which is to be only till the leaves are got fully to their size. When that is obtained, they are to be immediately gathered, for they begin to fade soon after. The exact time cannot be determined, for it depends on the season; but the farmer may always know, as the leaves will shew themselves when they are ready for gathering.

When

When the leaves are grown to their full size, and are firm to the touch, juicy and of a good green, they are ripe for cutting, which must be immediately done, and the ground cleared for the next crop. As soon as the fresh gathering is off, the intervals must be very thoroughly horse-hoed, and there will, in a few days, be a new appearance of leaves, which will make the same swift progress to their perfection. They are to be gathered as soon as ripe, in the same manner, and the ground plowed up between them, to give new vigour for the next, and thus throughout the whole Summer.

The seed of the same field must never be sown again, but an exchange made with some farmer at a distance. A few of the roots must be left from time to time, in the warmest and driest part of the field, for seed ; and thus the whole management for the present and succeeding years will go on easily together.



C. H. A. P. XXIII.

Of Flax.

THE RE are different kinds of soil on which this plant will grow ; but the most universal is a fine black mould enriched with rotten dung : this is the sort of land on which they raise it about the edges of the fens in Lincolnshire, and it always yields a strong well-bodied, and tolerably fine flax.

Flax will not succeed so well in open fields as inclosures, for it is subject to accidents from cold winds, hail, and droughts ; against which the shelter of inclosures is some defence. The best situation is on flat ground, because such is less exposed, and is naturally

M 3.

richer

richer and moister than what lies high. The black-mould soil should always be in such a situation ; but the tough loam may lie on a small ascent, because it will always retain moisture, and keep the roots firm : therefore if the farmer has a rich low field of six or eight acres, sheltered from the North-East, and in good condition, he cannot do better than raise flax upon it. This should be the first business ; afterwards he may sow it on loams in smaller rising enclosures for seed.

When the ground is chosen the next thing must be the preparing it for the seed. If barley has been the last crop, nothing can be better, because flax requires the land to be in very fine tilth ; and the preparation for the wheat, which has naturally preceded the barley and that for the barley itself, have reduced it to this fine condition. Manure should be added, and the land again well prepared for flax-feed. The dung that is used must be very old and well rotted, and there should be mixed with it equal quantities of pure river mud. Marle and lime are both very excellent manure for this seed, as they not only enrich it for a continuance of time, but prevent the ground being subject to weeds.

The first crop of flax should be raised from foreign seeds, the best of which is that from the province of Zealand, and is raised on stiff clayey soils. It must be large, heavy, thick, and very smooth.

In sowing the seed, if the farmer chuses the old method by broad-cast, he must take care that the ground be in very good condition. When the land is plowed up for Winter, it should be thrown up in high sharp ridges, to prevent the rain from soaking into it ; and then, in Spring, it must be laid as flat as possible, and perfectly prepared by the beginning of April, which is the time of sowing ; or if the Spring should be particularly fine, it may be done in the latter end of March. The

The quantity of seed must be three bushels to the acre, and great care must be taken to spread it even. The best way is to go twice over the land, strewing the seed with the right hand going one way, and with the left in coming back ; the ground must be clean and level for this, and then a good and careful harrowing will cover it : the best way is to use two fine harrows, joined together, and once going over the ground with these, will be quite sufficient.

When the flax is three inches high, it must be carefully weeded ; for the crop will come to little if it be not kept clean. Great care must be taken in doing of this, because if the flax be trodden down, it seldom recovers.

As soon as the flax is ripe it must be pulled, otherwise it will be greatly damaged. Those who intend to save seed from their ground must mark out a particular part of the crop for that purpose ; for if the whole should stand till the seed be ripe, it will lose the greatest part of its value.

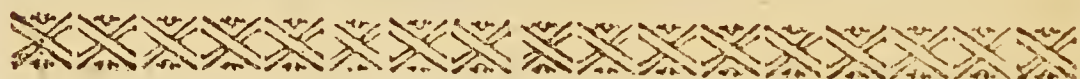
To know the exact time of pulling flax, the farmer must watch the heads : when the seed fill, they grow heavy, and the sun soon makes them brown ; their weight bends down the tender twigs on which they stand ; and, as soon as this begins to happen, the flax should be gathered. When they drop ever so little, and begin to change colour, the stalk is full ripe ; after this few juices are sucked up, and the thread withers.

If the crop be gathered before this change begins, the thread will be white, but weak ; and after it first appears, every hour is a loss. The mark of the true time is plain enough, and the farmer must be careful not to miss the opportunity of using it.

After

After the crop be gathered great care must be taken that it be regularly dried ; for if it be too long damp, the thread will be rotten ; and if it be dried too hastily, it will be harsh.

When it is properly dried it must be carried in, and if not sold in this condition, it must be laid up under cover till the farmer has time to work it, as far as he intends, but the sooner this is done the better.



C H A P. XXIV.

Of Hemp.

THE first consideration in cultivating this plant must be the quality of the soil, which should be a dry, light, and deep mould. The black earth of the edges of the fens, where it lies tolerably dry, will serve this purpose extremely well. And the situation should be a small inclosure that lies low ; for hemp though very large above the ground, roots but slightly ; and in an exposed situation would be liable to many accidents. The best soil will not bear hemp to any advantage, if it lies wet, as is the case in many rich meadows, which have therefore entirely failed.

After the farmer has chosen the proper soil and situation, the next care is to get good seed, which, though not very difficult, yet must be punctually regarded. Hemp seed is soon damaged by keeping, and it shews the mischief by being dusty : after the first year also, the shell grows weak, and the seed may be easily broken. The farmer should always buy the seed of the last year : he is, therefore, for these reasons, to judge of it by its cleanness, brightness and firmness. It should be perfectly clean and glossy, and, to try it farther, he should rub it a little between his hands :

if

if it bears this without breaking, it is new, and well prepared.

Three bushels of seed must be allowed to the acre ; and when it is sown the land must be deep and well ploughed. It must lie in ridges all Winter ; in Spring it must be ploughed again, and then harrowed ; after which it should be rolled with a heavy roller, and then harrowed again. This last operation must be very carefully performed, and it will fit the ground for the seed.

If the season be favourable, the best time for sowing hemp is the beginning of April : any time before the 15th will be very safe ; for this, though a large plant, is a quick grower.

The seed is to be sown by hand, going only once over the ground, and spreading it carefully and even. This done, the farmer must see the ground properly harrowed to cover it : and if showers fall as soon as this is done, it will greatly advance the growth of the plant. Great care should be taken to defend the ground from small birds, for they are great devourers of hemp seed.

In whatever way hemp is raised, whether by the common method, the horse-hoeing, or the drill, the management of it when ripe is to be the same. The male hemp produces a kind of dusty flowers, and is smallest in its growth ; the female produces the seeds, and is larger. The male when it has flowered, begins to decay, and that is the time of gathering it. The leaves first droop, and afterwards grow yellow : the stalk is then in perfection, and these plants must all be gathered. They are to be pulled up by the roots in the same manner as flax, and this gives a new dressing to the ground, breaking the soil and clearing the way for the roots of the female hemp to spread with all possible freedom.

About

About Lammas part of the crop will be ripe ; but the pullers must be cautioned not to damage the female, because that is by far the most valuable part of the crop.

The male hemp being gathered, the female is to stand till the beginning of October. It is then to be pulled in the same manner as the other, and made up into large bundles. The stalks in both kinds are to be cured by a slow, and regular drying ; and this is to be done by setting them up in those bundles in the field.

When the male hemp is dry there requires no farther trouble about it ; it is fit for market, or for working at home : but the female has also the seed, which is a valuable article, and this is to be thrashed out when the plants are dry enough.

As the hanging or fading of the leaves is the mark of the male hemp being fit to gather, so the female is to be pulled when the seed is ripe, the stalk always is in the right condition at the time when this is full grown, and moderately hardened ; therefore, when the seed begins to fall ; the farmer is to watch his crop, and when he finds the greatest part of it grown firm, he is to order the hemp to be pulled.

If the farmer chuses to work the hemp himself, it is to be done just in the same manner as flax, by watering, braking and carding ; and he thus brings it to the condition of the heckled flax, in which state there is always a demand for it ; but it will be most to his advantage to sell it as soon as dried, and return to his proper employment.

F I N I S.

0771
C772C

1769.